

=> FILE REG

FILE 'REGISTRY' ENTERED AT 12:00:54 ON 29 DEC 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2005 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 28 DEC 2005 HIGHEST RN 870751-96-5

DICTIONARY FILE UPDATES: 28 DEC 2005 HIGHEST RN 870751-96-5

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

*
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> FILE HCAPLU

FILE 'HCAPLUS' ENTERED AT 12:00:59 ON 29 DEC 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2005 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 29 Dec 2005 VOL 144 ISS 1

FILE LAST UPDATED: 28 Dec 2005 (20051228/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE

L4 104358 SEA FILE=REGISTRY ABB=ON 333.401.37/RID
 L5 277715 SEA FILE=REGISTRY ABB=ON 16.165.12/RID
 L6 300115 SEA FILE=REGISTRY ABB=ON 16.195.24/RID
 L7 542769 SEA FILE=REGISTRY ABB=ON 333.151.57/RID
 L8 233342 SEA FILE=REGISTRY ABB=ON 16.195.22/RID
 L9 106421 SEA FILE=REGISTRY ABB=ON 333.401.35/RID
 L10 30268 SEA FILE=REGISTRY ABB=ON 16.515.22/RID
 L12 8691 SEA FILE=REGISTRY ABB=ON ((L4 OR L5 OR L6 OR L7 OR L8 OR L9 OR L10)) AND PMS/CI
 L17 542769 SEA FILE=REGISTRY ABB=ON L7 OR L7
 L18 292770 SEA FILE=REGISTRY RAN=(,357260-15-2) ABB=ON L7 OR L7
 L19 249999 SEA FILE=REGISTRY ABB=ON L17 NOT L18
 L20 300115 SEA FILE=REGISTRY ABB=ON L6 OR L6
 L21 150116 SEA FILE=REGISTRY RAN=(,340683-92-3) ABB=ON L6 OR L6
 L22 48178 SEA FILE=HCAPLUS ABB=ON L4
 L23 43882 SEA FILE=HCAPLUS ABB=ON L5
 L24 80432 SEA FILE=HCAPLUS ABB=ON L8
 L25 14123 SEA FILE=HCAPLUS ABB=ON L9
 L26 15309 SEA FILE=HCAPLUS ABB=ON L10
 L27 149999 SEA FILE=REGISTRY ABB=ON L20 NOT L21
 L28 19802 SEA FILE=HCAPLUS ABB=ON L19
 L29 260422 SEA FILE=HCAPLUS ABB=ON L18
 L30 197659 SEA FILE=HCAPLUS ABB=ON L21
 L31 18898 SEA FILE=HCAPLUS ABB=ON L27
 L32 1495 SEA FILE=HCAPLUS ABB=ON ((L22 OR L23 OR L24 OR L25 OR L26) OR (L28 OR L29 OR L30 OR L31)) (L) ELECTRODE?
 L33 7558 SEA FILE=HCAPLUS ABB=ON L12
 L34 146 SEA FILE=HCAPLUS ABB=ON L33 (L) ELECTRODE?
 L36 566 SEA FILE=HCAPLUS ABB=ON (L32 OR L34) AND ELECTROCHEM?/SC
 L37 67 SEA FILE=HCAPLUS ABB=ON L36 AND BATTER?
 L38 7555 SEA FILE=HCAPLUS ABB=ON PROTON? (2A) CONDUCT?
 L39 12 SEA FILE=HCAPLUS ABB=ON L36 AND L38
 L40 75 SEA FILE=HCAPLUS ABB=ON L37 OR L39

Ring identifiers for the rings in claims 4 & 5

=> D L40 BIB ABS HITIND HITSTR 1-75

L40 ANSWER 1 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2005:1240765 HCAPLUS
 DN 143:480414
 TI Method of fabrication of electrode
 IN Leitner, Klaus Werner; Besenhard, Juergen Otto; Moeller, Kai-Christian; Winter, Martin; Lee, Ki-Young; Park, Seong-Yong; Han, Joong-Hee; Gollas, Bernhard Robert
 PA LG Chem, Ltd., S. Korea
 SO PCT Int. Appl., 29 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005112151	A1	20051124	WO 2005-KR1442	20050517
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KZ, LC,				

LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG,
 NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL,
 SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,
 ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM,
 AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK,
 EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT,
 RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,
 MR, NE, SN, TD, TG

PRAI US 2004-571842P P 20040517
 KR 2005-41033 A 20050517

AB The present invention is related to an electrode and a method for preparing the same, and is particularly related to an electrode that has an intricate structure of active material layer, conductive material layer, or mixture layer of active material and conductive material that displays superior electrochem. properties despite being thin, and a method for preparing an electrode using the coating method of substrate induced coagulation.

IC ICM H01M004-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 76

ST battery electrode fabrication method; fuel cell electrode fabrication method; capacitor electrode fabrication method

IT Battery electrodes
 Capacitor electrodes
 Fuel cell electrodes
 Polyelectrolytes

(method of fabrication of electrode)

IT 9000-69-5, Pectin 9002-18-0, Agar 9002-89-5, Polyvinyl alcohol 9003-01-4D, Polyacrylic acid, alkali salts 9003-05-8, Polyacrylamide 9003-05-8D, copolymer 9003-39-8, Polyvinylpyrrolidone 9004-32-4, Cmc 9004-54-0, Dextran, uses 9005-25-8, Starch, uses 9005-32-7, Alginic acid 9005-38-3, Sodium alginate 25014-12-4D, Polymethacrylamide, copolymer 25232-42-2, Polyvinyl imidazole 25322-68-3, Polyethylene glycol 29690-74-2D, Vinylphosphoric acid homopolymer, alkali salts 68797-57-9, Epichlorohydrin-imidazole copolymer 869707-37-9

RL: MOA (Modifier or additive use); USES (Uses)
 (method of fabrication of electrode)

IT 25232-42-2, Polyvinyl imidazole 68797-57-9, Epichlorohydrin-imidazole copolymer

RL: MOA (Modifier or additive use); USES (Uses)
 (method of fabrication of electrode)

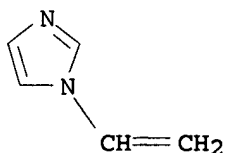
RN 25232-42-2 HCAPLUS

CN 1H-Imidazole, 1-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1072-63-5

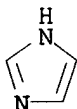
CMF C5 H6 N2



RN 68797-57-9 HCAPLUS
 CN 1H-Imidazole, polymer with (chloromethyl)oxirane (9CI) (CA INDEX NAME)

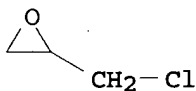
CM 1

CRN 288-32-4
 CMF C3 H4 N2



CM 2

CRN 106-89-8
 CMF C3 H5 Cl O



RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 2 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2005:735154 HCAPLUS
 DN 143:196855
 TI Protected active metal electrode and battery cell structures
 with nonaqueous interlayer architecture
 IN Visco, Steven J.; Katz, Bruce D.; Nimon, Yevgeniy S.; De Jonghe, Lutgard
 C.
 PA Polyplus Battery Company, USA
 SO U.S. Pat. Appl. Publ., 20 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005175894	A1	20050811	US 2004-824944	20040414
	WO 2005083829	A2	20050909	WO 2004-US33371	20041008
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 2004-542532P	P	20040206		

US 2004-548231P P 20040227
US 2004-824944 A 20040414

AB The invention concerns active metal and active metal intercalation electrode structures and **battery** cells having ionically conductive protective architecture including an active metal (e.g., lithium) conductive impervious layer separated from the electrode (anode) by a porous separator impregnated with a non-aqueous electrolyte (anolyte). This protective architecture prevents the active metal from deleterious reaction with the environment on the other (cathode) side of the impervious layer, which may include aqueous or nonaq. liquid electrolytes (catholytes) and/or a variety electrochem. active materials, including liquid, solid and gaseous oxidizers. Safety additives and designs that facilitate manufacture are also provided.

IC ICM H01M004-60
INCL 429212000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

ST **battery** protected active metal electrode; safety **battery** protected active metal electrode

IT Alloys, uses
RL: DEV (Device component use); USES (Uses)
(hydrogen absorbing alloy; protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)

IT Primary **batteries**
Secondary **batteries**
(lithium; protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)

IT Polymers, uses
RL: DEV (Device component use); USES (Uses)
(microporous; protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)

IT Carbonates, uses
RL: DEV (Device component use); USES (Uses)
(organic; protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)

IT **Battery** anodes
Battery electrolytes
Ceramics
Gelation agents
Glass ceramics
Ionic liquids
Oxidizing agents
Polymerization catalysts
Primary **batteries**
Primary **battery** separators
Seawater
Secondary **batteries**
(protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)

IT Esters, uses
Ethers, uses
Intercalation compounds
Ionomers
Lactones
Polysulfides
Sulfones
Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(protected active metal electrode and **battery** cell structures

- with nonaq. interlayer architecture)
- IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT Glass, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT Hydrides
RL: TEM (Technical or engineered material use); USES (Uses)
(protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT Fuel cells
(proton exchange membrane; protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT Quaternary ammonium compounds, uses
RL: DEV (Device component use); USES (Uses)
(tetraalkyl; protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT 1310-53-8, Germanium oxide (GeO₂), uses 1314-23-4, Zirconia, uses 1314-56-3, Phosphorus oxide (P₂O₅), uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 12024-21-4, Gallium oxide (Ga₂O₃) 12057-24-8, Lithia, uses 13463-67-7, Titania, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(glass ceramic; protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT 7446-09-5, Sulfur dioxide, processes 7632-00-0, Sodium nitrite 7722-84-1, Hydrogen peroxide, processes 7757-83-7, Sodium sulfite 7758-09-0, Potassium nitrite 7782-44-7, Oxygen, processes 10102-44-0, Nitrogen dioxide, processes 10117-38-1, Potassium sulfite 14915-07-2, Peroxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(protected active metal electrode and **battery** cell structures with nonaq. interlayer architecture)
- IT 64-19-7, Acetic acid, uses 71-47-6, Formate, uses 79-20-9, Methyl acetate 96-47-9, 2-Methyltetrahydrofuran 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane 546-89-4, Lithium acetate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane 1301-96-8, Silver oxide (AgO) 1310-65-2, Lithium hydroxide 1332-37-2, Iron oxide, uses 1335-25-7, Lead oxide 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-43-9, Cadmium, uses 7440-44-0, Carbon, uses 7440-55-3, Gallium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7447-41-8, Lithium chloride, uses 7550-35-8, Lithium bromide 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 7719-09-7, Thionyl chloride 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide 11129-60-5, Manganese oxide 12026-04-9, Nickel hydroxide oxide NiOOH 12124-97-9, Ammonium bromide 12125-02-9, Ammonium chloride, uses 14283-07-9, Lithium tetrafluoroborate 16749-13-6D, Phosphonium, compound 16969-45-2D, Pyridinium, derivs.

17009-90-4D, Imidazolium, derivs. 21324-40-3, Lithium hexafluorophosphate 25067-64-5 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 74432-42-1, Lithium polysulfide 90076-65-6 132843-44-8 155371-19-0, 1-Ethyl-3-methylimidazolium hexafluorophosphate 174501-64-5, 1-Butyl-3-methylimidazolium hexafluorophosphate 244193-50-8, 1-Hexyl-3-methylimidazolium tetrafluoroborate 328090-25-1, 1-Ethyl-3-methylimidazolium tosylate

IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9, PvdF 25014-41-9, Polyacrylonitrile 25322-68-3, Peo

RL: DEV (Device component use); USES (Uses)
(protected active metal **electrode** and **battery** cell structures with nonaq. interlayer architecture)

IT 1333-74-0P, Hydrogen, uses

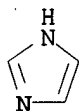
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(protected active metal **electrode** and **battery** cell structures with nonaq. interlayer architecture)

IT 17009-90-4D, Imidazolium, derivs. 155371-19-0, 1-Ethyl-3-methylimidazolium hexafluorophosphate 174501-64-5, 1-Butyl-3-methylimidazolium hexafluorophosphate 244193-50-8, 1-Hexyl-3-methylimidazolium tetrafluoroborate 328090-25-1, 1-Ethyl-3-methylimidazolium tosylate

RL: DEV (Device component use); USES (Uses)
(protected active metal **electrode** and **battery** cell structures with nonaq. interlayer architecture)

RN 17009-90-4 HCAPLUS

CN 1H-Imidazole, conjugate monoacid (9CI) (CA INDEX NAME)



● H⁺

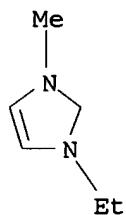
RN 155371-19-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 65039-03-4

CMF C6 H11 N2



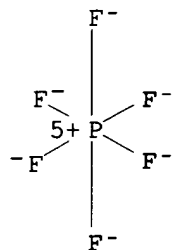
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



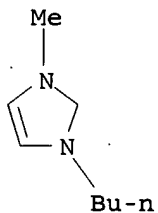
RN 174501-64-5 HCAPLUS

CN 1H-Imidazolium, 1-butyl-3-methyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 80432-08-2

CMF C8 H15 N2



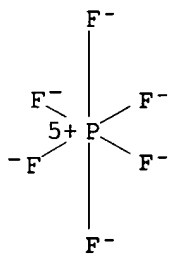
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 16919-18-9

CMF F6 P

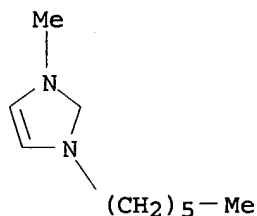
CCI CCS



RN 244193-50-8 HCAPLUS
 CN 1H-Imidazolium, 1-hexyl-3-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

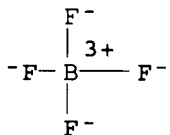
CRN 85100-82-9
 CMF C10 H19 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

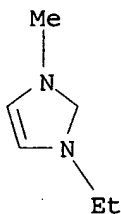
CRN 14874-70-5
 CMF B F4
 CCI CCS



RN 328090-25-1 HCAPLUS
 CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with 4-methylbenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 65039-03-4
 CMF C6 H11 N2

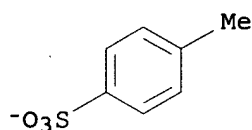


ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 16722-51-3

CMF C7 H7 O3 S



L40 ANSWER 3 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:696488 HCAPLUS

DN 143:196828

TI Gel electrolyte and electrode for fuel cell

IN Aihara, Yuichi

PA Japan

SO U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005170252	A1	20050804	US 2005-37231	20050119
	JP 2005209379	A2	20050804	JP 2004-11869	20040120
PRAI	JP 2004-11869	A	20040120		
	KR 2004-73362	A	20040914		

AB A gel electrolyte can have high **proton conductivity** even at conditions of no humidity and high temps. and can have increased mech. strength. The gel electrolyte can include an acid and a matrix polymer capable of being swollen by the acid. The matrix polymer can be a polyparabanic acid or a derivative thereof.

IC ICM H01M008-10

ICS H01M010-40; H01M004-86

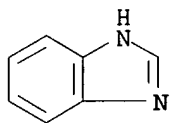
INCL 429303000; 429314000; 429042000; 429033000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

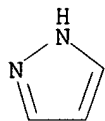
Section cross-reference(s): 38

IT 51-17-2, Benzimidazole 101-60-0D, Porphyrin, derivs.
 109-97-7D, Pyrrole, derivs. 110-86-1D, Pyridine, derivs. 120-73-0,
 Purine 288-13-1, Pyrazole 288-32-4, Imidazole, uses
 289-95-2D, Pyrimidine, derivs. 290-37-9D, Pyrazine, derivs. 574-93-6D,
 Phthalocyanine, derivs.

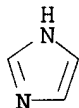
RL: DEV (Device component use); USES (Uses)
 (gel electrolyte and **electrode** for fuel cell)
 IT 51-17-2, Benzimidazole 288-13-1, Pyrazole
 288-32-4, Imidazole, uses
 RL: DEV (Device component use); USES (Uses)
 (gel electrolyte and **electrode** for fuel cell)
 RN 51-17-2 HCAPLUS
 CN 1H-Benzimidazole (9CI) (CA INDEX NAME)



RN 288-13-1 HCAPLUS
 CN 1H-Pyrazole (9CI) (CA INDEX NAME)



RN 288-32-4 HCAPLUS
 CN 1H-Imidazole (9CI) (CA INDEX NAME)



L40 ANSWER 4 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2005:695899 HCAPLUS
 DN 143:196811
 TI Gel electrolytes showing high **proton conductivity** and
 mechanical strength, fuel cell electrodes containing them, and fuel cells
 IN Aihara, Yuichi
 PA Samsung SDI Co., Ltd., S. Korea
 SO Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005209379	A2	20050804	JP 2004-11869	20040120
	US 2005170252	A1	20050804	US 2005-37231	20050119
PRAI	JP 2004-11869	A	20040120		
	KR 2004-73362	A	20040914		

AB The gel electrolytes contain acids and acid-swelling matrix polymers comprising polyparabanic acids. The fuel cells using the electrodes and electrolyte membranes containing the gel electrolytes show high **proton conductivity** at high temperature under nonhumidified condition.

IC ICM H01M008-02
ICS C08K003-32; C08K005-34; C08L079-04; H01B001-06; H01M008-10

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST acid doped polyparabanic acid electrolyte fuel cell; fuel cell electrode acid doped polyparabanic acid; **proton conductor** acid doped polyparabanic acid

IT Conducting polymers
Fuel cell electrodes
Fuel cell electrolytes
(gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT Porphyrins
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT Polyparabanic acids
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(phosphoric acid-doped; gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT Polyparabanic acids
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-, phosphoric acid-doped; gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT Fuel cells
(polymer electrolyte; gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT Polyethers, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyparabanic acid-, phosphoric acid-doped; gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT Ionic conductors
(**protonic**; gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT 7664-38-2, Phosphoric acid, uses
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(dopant; gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT 51-17-2, Benzimidazole 109-97-7, Pyrrole 110-86-1, Pyridine, uses 120-73-0, Purine 288-13-1, Pyrazole 288-32-4, Imidazole, uses 289-95-2, Pyrimidine 290-37-9, Pyrazine 574-93-6, Phthalocyanine
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT 28550-63-2P, Diphenylmethane diisocyanate-hydrocyanic acid copolymer 28555-74-0P 31626-60-5P 35297-16-6P 37725-18-1P, Diphenylmethane

diisocyanate-hydrocyanic acid copolymer, sru 54351-47-2P, Hydrocyanic acid-2,4-TDI copolymer, sru 113587-56-7P 113587-62-5P 861927-58-4P 861927-59-5P 861927-60-8P 861927-61-9P

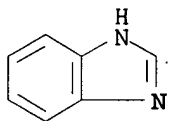
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (phosphoric acid-doped; gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell electrodes and electrolyte membranes)

IT 51-17-2, Benzimidazole 288-13-1, Pyrazole 288-32-4, Imidazole, uses

RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (gel electrolytes showing high **proton conductivity** and mech. strength for fuel cell **electrodes** and electrolyte membranes)

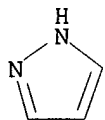
RN 51-17-2 HCAPLUS

CN 1H-Benzimidazole (9CI) (CA INDEX NAME)



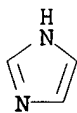
RN 288-13-1 HCAPLUS

CN 1H-Pyrazole (9CI) (CA INDEX NAME)



RN 288-32-4 HCAPLUS

CN 1H-Imidazole (9CI) (CA INDEX NAME)



L40 ANSWER 5 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:672920 HCAPLUS

DN 143:176217

TI Conductive polymers for electrode materials of electrochemical cells

IN Nobuta, Tomoki; Nishiyama, Toshihiko; Mitani, Masaya; Takahashi, Naoki; Yoshinari, Tetsuya

PA Japan

SO U.S. Pat. Appl. Publ., 21 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

PATENT NO.

KIND

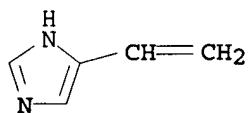
DATE

APPLICATION NO.

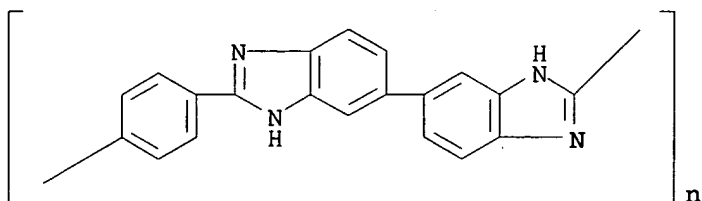
DATE

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

 PI US 2005165214 A1 20050728 US 2005-42900 20050125
 JP 2005209576 A2 20050804 JP 2004-17011 20040126
 PRAI JP 2004-17011 A 20040126
 AB This invention relates to a polymer having a chain structure of a repeating unit of a **proton-conducting** compound which causes an electrochem. redox reaction in a solution of a proton source to act as an electrode active material, and a heterocyclic compound structure; and an electrochem. cell comprising the polymer as an electrode active material.
 IC ICM H01M004-60
 INCL 528422000
 CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 76
 ST conductive polymer electrode material electrochem cell; **battery** conductive polymer electrode material; capacitor conductive polymer electrode material
 IT **Battery** anodes
 Battery cathodes
 Capacitor electrodes
 Conducting polymers
 Electrochemical cells
 Secondary **batteries**
 (conductive polymers for electrode materials of electrochem. cells)
 IT 91-95-2DP, [1,1'-Biphenyl]-3,3',4,4'-tetramine, Block copolymers containing 3010-82-0DP, 1,4-Benzenedicarboxamide, Block copolymers containing 3718-04-5DP, Block copolymers containing 28576-59-2DP, Block copolymers containing 52232-62-9DP, Block copolymers containing 652968-48-4P 860792-82-1P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (conductive polymers for **electrode** materials of electrochem. cells)
 IT 3718-04-5DP, Block copolymers containing 28576-59-2DP, Block copolymers containing 652968-48-4P
 RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (conductive polymers for **electrode** materials of electrochem. cells)
 RN 3718-04-5 HCAPLUS
 CN 1H-Imidazole, 4-ethenyl- (9CI) (CA INDEX NAME)



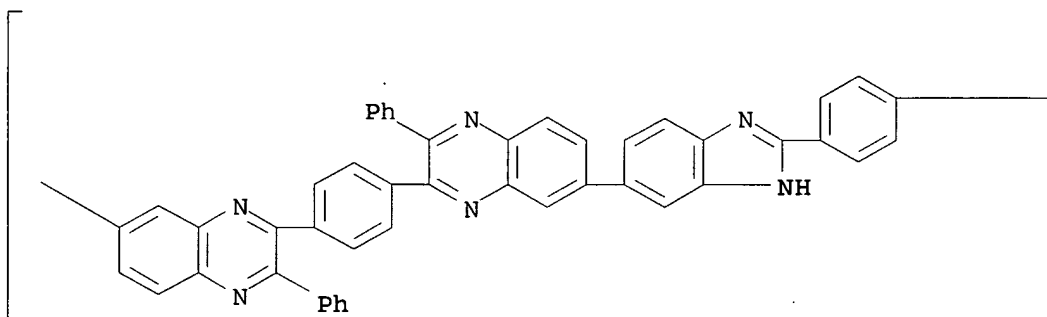
RN 28576-59-2 HCAPLUS
 CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-1,4-phenylene) (9CI) (CA INDEX NAME)



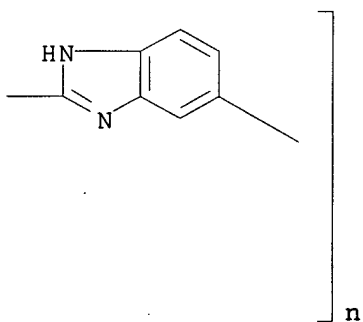
RN 652968-48-4 HCAPLUS

CN Poly[(3-phenyl-7,2-quinoxalinediyl)-1,4-phenylene(3-phenyl-2,7-quinoxalinediyl)-1H-benzimidazole-5,2-diyl-1,4-phenylene-1H-benzimidazole-2,5-diyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L40 ANSWER 6 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:608928 HCAPLUS

DN 143:105272

TI Indole carboxylic acid ester trimer and its use in electrochemical cell
 IN Oi, Hideo; Tanisawa, Naoto; Mitani, Katsuya; Shinoda, Tomoki; Nishiyama, Toshihiko; Yoshinari, Tetsuya; Takahashi, Naoki

PA Ihara Chemical Industry Co., Ltd., Japan; NEC Tokin Corp.

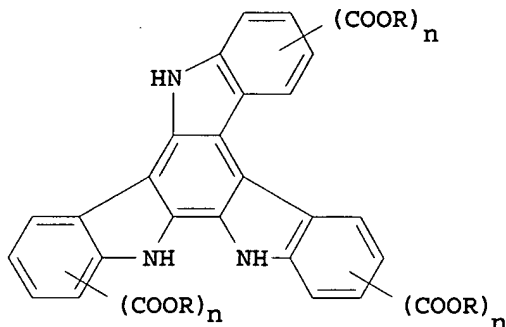
SO Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DT Patent

LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005187393	A2	20050714	JP 2003-430418	20031225
	US 2005185247	A1	20050825	US 2004-14911	20041220
PRAI	JP 2003-430418	A	20031225		
OS	MARPAT 143:105272				
GI					



AB The trimer is represented by I (R = C1-6 linear or branched alkyl; n = 1-4; Xa- = anion of Cl, Br, I, F, nitrate, sulfate, hydrogensulfate, phosphate, borofluoride, perchlorate, thiocyanate, acetate, propionate, methanesulfonate, p-toluenesulfonate, trifluoroacetate, trifluoromethanesulfonate; a = 1-3 as ion valent; m = 0-0.5). The cell uses an electrode active mass containing the above trimer and H⁺ as an charge carrier. The cell such as an elec. double-layer capacitor or a secondary **battery** shows high electromotive force, capacity, and cycle performance owing to the trimer.

IC ICM C07D487-14

ICS H01M004-60

CC 72-3 (**Electrochemistry**)

Section cross-reference(s): 28, 52, 76

IT 50820-65-0P, Methyl indole-6-carboxylate

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(indole carboxylic acid ester trimer for **electrode** active mass in electrochem. cell with high cycle performance)

IT 4637-24-5, Dimethylformamide dimethylacetal 7356-11-8, Methyl 4-methyl-3-nitrobenzoate 153602-71-2, Dimethyl indole-5,6-dicarboxylate

RL: RCT (Reactant); RACT (Reactant or reagent)

(indole carboxylic acid ester trimer for **electrode** active mass in electrochem. cell with high cycle performance)

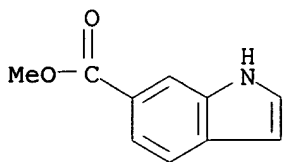
IT 50820-65-0P, Methyl indole-6-carboxylate

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

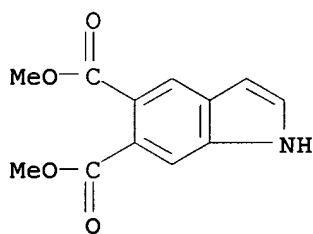
(indole carboxylic acid ester trimer for **electrode** active mass in electrochem. cell with high cycle performance)

RN 50820-65-0 HCAPLUS

CN 1H-Indole-6-carboxylic acid, methyl ester (9CI) (CA INDEX NAME)



IT 153602-71-2, Dimethyl indole-5,6-dicarboxylate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (indole carboxylic acid ester trimer for electrode active
 mass in electrochem. cell with high cycle performance)
 RN 153602-71-2 HCAPLUS
 CN 1H-Indole-5,6-dicarboxylic acid, dimethyl ester (9CI) (CA INDEX NAME)



L40 ANSWER 7 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:302818 HCAPLUS

DN 142:376530

TI Production method of electrochemical devices

IN Kurihara, Masato; Maruyama, Akira

PA TDK Corporation, Japan

SO Jpn. Kokai Tokkyo Koho, 20 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005093824	A2	20050407	JP 2003-326752	20030918
	US 2005081370	A1	20050421	US 2004-935233	20040908
PRAI	JP 2003-326752	A	20030918		

AB The disclosed fabrication process for electrochem. devices comprising a pair of electrodes, a separator, and an electrolyte layer includes a step of coating either the electrodes or the separator with an ionic liquid prior to bonding the electrodes with the separator. The electrochem. devices may be a lithium ion battery or electrolytic capacitors. The ionic liquid may be a solution of quaternary ammonium salt with trifluoromethanesulfonimide. The device exhibit high energy capacity and durability.

IC ICM H01G009-038

ICS H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 76

ST lithium ion battery fabrication quaternary ammonium

trifluoromethanesulfonimide salt; electrolytic capacitor fabrication

IT Battery electrodes

Secondary battery separators

(lithium ion battery; quaternary ammonium
trifluoromethanesulfonimide salt-coated)

IT Secondary batteries

(lithium ion; fabrication process for)

IT 174899-82-2 223437-11-4 375395-33-8 623580-02-9
849418-12-8RL: TEM (Technical or engineered material use); USES (Uses)
(electrochem. device electrodes and separators coated with a
solution containing)

IT 174899-82-2

RL: TEM (Technical or engineered material use); USES (Uses)
(electrochem. device electrodes and separators coated with a
solution containing)

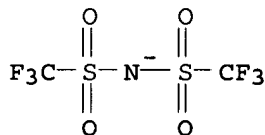
RN 174899-82-2 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with 1,1,1-trifluoro-N-
[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 98837-98-0

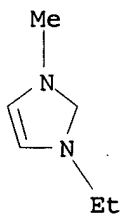
CMF C2 F6 N O4 S2



CM 2

CRN 65039-03-4

CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 8 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2005:78059 HCAPLUS

DN 142:159580

TI Long life lithium batteries with stabilized electrodes

IN Amine, Khalil; Kim, Jaekook; Vissers, Donald R.

PA USA

SO U.S. Pat. Appl. Publ., 13 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005019670	A1	20050127	US 2004-857365	20040528
PRAI	US 2003-488063P	P	20030717		

AB The present invention relates to nonaq. electrolytes having stabilization additives and electrochem. devices containing the same. Thus the present invention provides electrolytes containing an alkali metal salt, a polar aprotic solvent, a first additive that is a substituted or unsubstituted organoamine, substituted or unsubstituted alkane, substituted or unsubstituted alkene, or substituted or unsubstituted aryl compound, and/or a second additive that is a metal(chelato)borate. When used in electrochem. devices with, e.g., lithium manganese oxide spinel electrodes, the new electrolytes provide **batteries** with improved calendar and cycle life.

IC ICM H01M010-40
ICS H01M004-58; H01M004-52; H01M004-60; H01M004-50

INCL 429326000; 429213000; 429224000; 429231100; 429223000; 429231300; 429221000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium **battery** stabilized electrode

IT Secondary **batteries**
(lithium; long life lithium **batteries** with stabilized electrodes)

IT **Battery** electrodes
Battery electrolytes
(long life lithium **batteries** with stabilized electrodes)

IT Intermetallic compounds
RL: DEV (Device component use); USES (Uses)
(long life lithium **batteries** with stabilized electrodes)

IT Alkanes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(long life lithium **batteries** with stabilized electrodes)

IT Alkenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(long life lithium **batteries** with stabilized electrodes)

IT Aromatic compounds
RL: MOA (Modifier or additive use); USES (Uses)
(long life lithium **batteries** with stabilized electrodes)

IT Chelates
RL: MOA (Modifier or additive use); USES (Uses)
(long life lithium **batteries** with stabilized electrodes)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic; long life lithium **batteries** with stabilized electrodes)

IT Tin alloy, base
RL: DEV (Device component use); USES (Uses)
(long life lithium **batteries** with stabilized electrodes)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 115-10-6, Dimethyl ether 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 7439-93-2, Lithium, uses 7440-44-0, Carbon, uses 7664-38-2D, Phosphoric acid, alkyl fluoro compound, lithium salt 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 11099-11-9, Vanadium oxide 12022-46-7, Iron lithium oxide (FeLiO₂) 12031-65-1, Lithium nickel oxide (LiNiO₂) 12031-95-7, Lithium titanium oxide (Li₄Ti₅O₁₂) 12057-17-9, Lithium manganese oxide (LiMn₂O₄) 12190-79-3, Cobalt lithium oxide (CoLiO₂) 14283-07-9, Lithium tetrafluoroborate 15365-14-7, Iron

lithium phosphate felipo4 21324-40-3, Lithium hexafluorophosphate
29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate
90076-65-6 128975-24-6, Lithium manganese nickel oxide $\text{LiMn}_0.5\text{Ni}_0.5\text{O}_2$
132404-42-3 132843-44-8 609349-41-9, Cobalt lithium manganese nickel
oxide ($\text{Co}_0.3\text{LiMn}_0.3\text{Ni}_0.3\text{O}_2$)

RL: DEV (Device component use); USES (Uses)

(long life lithium **batteries** with stabilized electrodes)

IT 84-15-1, o-Terphenyl 91-19-0, Quinoxaline 91-20-3, Naphthalene, uses
91-22-5, Quinoline, uses 92-52-4, Biphenyl, uses 96-54-8,
n-Methylpyrrole 100-43-6, 4-Vinylpyridine 100-69-6, 2-Vinylpyridine
101-84-8, Diphenyl ether 102-71-6, Triethanolamine, uses 103-29-7,
1,2-Diphenylethane 106-99-0, Butadiene, uses 110-86-1, Pyridine, uses
110-89-4, Piperidine, uses 119-65-3, Isoquinoline 120-72-9,
Indole, uses 288-32-4, Imidazole, uses 289-80-5, Pyridazine
289-95-2, Pyrimidine 290-37-9, Pyrazine 1118-58-7, 1,3-Dimethyl
1,3-butadiene 1337-81-1, Vinyl Pyridine 4177-16-6, Pyrazine, vinyl-
4427-96-7, Vinyl ethylene carbonate 7570-02-7, Divinyl carbonate
29383-23-1, Vinyl Imidazole 30676-86-9, Piperidine, vinyl-
30851-79-7 31094-36-7 51222-11-8 66281-01-4 66281-16-1
77208-21-0 244761-29-3, Lithium bis(oxalato)borate 409071-16-5

RL: MOA (Modifier or additive use); USES (Uses)

(long life lithium **batteries** with stabilized
electrodes)

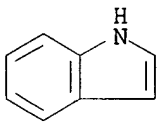
IT 120-72-9, Indole, uses 288-32-4, Imidazole, uses
29383-23-1, Vinyl Imidazole 30851-79-7

RL: MOA (Modifier or additive use); USES (Uses)

(long life lithium **batteries** with stabilized
electrodes)

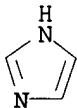
RN 120-72-9 HCAPLUS

CN 1H-Indole (9CI) (CA INDEX NAME)



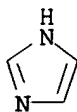
RN 288-32-4 HCAPLUS

CN 1H-Imidazole (9CI) (CA INDEX NAME)

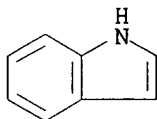


RN 29383-23-1 HCAPLUS

CN 1H-Imidazole, ethenyl- (9CI) (CA INDEX NAME)

D1-CH=CH₂

RN 30851-79-7 HCAPLUS
 CN 1H-Indole, ethenyl- (9CI) (CA INDEX NAME)

D1-CH=CH₂

L40 ANSWER 9 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:1080098 HCAPLUS

DN 142:25948

TI Small sized hybridized electricity storage device

IN Yoshinari, Tetsuya; Kamito, Hiroyuki; Shinoda, Tomoki; Nishiyama,
 Toshihiko; Mitani, Katsuya

PA NEC Tokin Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004355823	A2	20041216	JP 2003-148759	20030527
PRAI	JP 2003-148759		20030527		

AB The device comprises multilayered laminates of elec. double layer capacitors and secondary batteries with the anode and/or the cathode of the batteries containing polymers that are electrochem. active in acidic electrolytes. The device is small sized and shows high power output.

IC ICM H01M016-00

ICS H01G009-038; H01G009-155; H01G009-28; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy
 Technology)

Section cross-reference(s): 76

ST elec double layer capacitor secondary battery hybridized;
 secondary battery polymer electrode capacitor hybrid; small
 sized power capacitor secondary battery hybrid

IT Polymers, uses

RL: DEV (Device component use); USES (Uses)

(battery electrodes containing; small sized elec. double layer
 capacitor-secondary battery hybridized power generator)

IT Capacitors

(double layer; small sized elec. double layer capacitor-secondary battery hybridized power generator)

IT Polyquinoxalines
 RL: DEV (Device component use); USES (Uses)
 (polyphenylquinoxalines, battery electrodes containing; small sized elec. double layer capacitor-secondary battery hybridized power generator)

IT Battery electrodes
 Secondary batteries
 (small sized elec. double layer capacitor-secondary battery hybridized power generator)

IT 82451-55-6, Polyindole
 RL: DEV (Device component use); USES (Uses)
 (battery electrodes containing; small sized elec. double layer capacitor-secondary battery hybridized power generator)

IT 7647-01-0, Hydrochloric acid 7664-93-9, Sulfuric acid, uses
 RL: DEV (Device component use); USES (Uses)
 (electrolyte; small sized elec. double layer capacitor-secondary battery hybridized power generator)

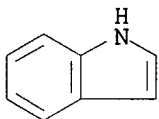
IT 82451-55-6, Polyindole
 RL: DEV (Device component use); USES (Uses)
 (battery electrodes containing; small sized elec. double layer capacitor-secondary battery hybridized power generator)

RN 82451-55-6 HCAPLUS
 CN 1H-Indole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 120-72-9

CMF C8 H7 N



L40 ANSWER 10 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:1019540 HCAPLUS

DN 142:9216

TI Mixer for coating an ion-conducting polymer on a powdered substance and method for coating the same

IN Sato, Takaya; Shimizu, Tatsuo

PA Nisshinbo Industries, Inc., Japan; Itochu Corp.

SO U.S. Pat. Appl. Publ., 32 pp., Cont.-in-part of U.S. Ser. No. 807,212, abandoned.
 CODEN: USXXCO

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004234677	A1	20041125	US 2004-793975	20040305
	WO 2001013447	A1	20010222	WO 2000-JP5397	20000811
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,				

CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI JP 1999-262501 A 19990812
WO 2000-JP5397 A 20000811
US 2001-807212 B2 20010411

AB A mixer and method for mixing and press-sliding a mixture of an ion-conducting polymer or a raw material of the ion-conducting polymer with a powdered substance are described. Due to the effective press-sliding process, the powdered substance is effectively coated with the ion-conducting polymer.

IC ICM B05D007-00
ICS B05D001-00

INCL 427011000; 427212000; 366064000; 366279000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 76

IT Conducting polymers

(coatings; mixer and method for coating ion-conducting polymers on powders for electrodes of **batteries** and capacitors)

IT **Battery** electrodes

Capacitor electrodes

Capacitors

Mixers (processing apparatus)

Powders

Secondary batteries

(mixer and method for coating ion-conducting polymers on powders for electrodes of **batteries** and capacitors)

IT 116680-33-2, NC-IM

RL: CAT (Catalyst use); USES (Uses)

(mixer and method for coating ion-conducting polymers on powders for **electrodes** of **batteries** and capacitors)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 109-78-4, Ethylene cyanohydrin 110-63-4, 1,4-Butanediol, uses 3290-92-4, Trimethylolpropanetri methacrylate 4419-11-8, 2,2'-Azobis(2,4-dimethylvaleronitrile) 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 9002-89-5D, cyanoethyl dihydroxypropyl ethers 9016-87-9, MR-200 9082-00-2, Sannix FA 103 12190-79-3, Cobalt lithium oxide (CoLiO₂) 26915-72-0, Methoxypolyethylene glycol methacrylate

RL: DEV (Device component use); USES (Uses)

(mixer and method for coating ion-conducting polymers on powders for electrodes of **batteries** and capacitors)

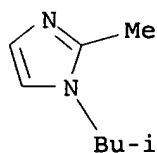
IT 116680-33-2, NC-IM

RL: CAT (Catalyst use); USES (Uses)

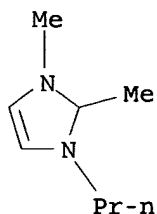
(mixer and method for coating ion-conducting polymers on powders for **electrodes** of **batteries** and capacitors)

RN 116680-33-2 HCAPLUS

CN 1H-Imidazole, 2-methyl-1-(2-methylpropyl)- (9CI) (CA INDEX NAME)



L40 ANSWER 11 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:944679 HCAPLUS
 DN 142:97316
 TI Low-Temperature Fabrication of Dye-Sensitized Plastic Electrodes by
 Electrophoretic Preparation of Mesoporous TiO₂ Layers
 AU Miyasaka, Tsutomu; Kijitori, Yujiro
 CS Graduate School of Engineering, Toin University of Yokohama, Yokohama,
 Kanagawa, 225-8502, Japan
 SO Journal of the Electrochemical Society (2004), 151(11), A1767-A1773
 CODEN: JESOA; ISSN: 0013-4651
 PB Electrochemical Society
 DT Journal
 LA English
 AB A mesoporous nanocryst. TiO₂ layer was prepared on a conductive indium-tin
 oxide (ITO)-coated poly(ethylene terephthalate) (PET) film by low-temperature
 fabrication processes comprising high-field electrophoretic deposition of
 TiO₂ particles and post-treatments with a titanium oxide sol for
 interparticle binding. TiO₂-coated ITO-PET film was dye-sensitized with
 Ru bipyridyl complex (N719) and used as the photoanode of an electrochem.
 solar cell using methoxyacetonitrile-based iodide/triiodide redox
 electrolyte. The solar cell yielded high conversion efficiencies of 4.1
 and 4.3% for incident solar energies of 100 and 23 mW/cm².
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy
 Technology)
 IT 1738-36-9, Methoxyacetonitrile 3978-81-2, 4-tert-Butylpyridine
 10377-51-2, Lithium iodide 12532-38-6, Lithium triiodide
 218151-78-1, 1,2-Dimethyl-3-propylimidazolium iodide
 RL: TEM (Technical or engineered material use); USES (Uses)
 (battery redox electrolyte containing; low-temperature fabrication of
 dye-sensitized polymer electrodes by electrophoretic preparation
 of mesoporous TiO₂ layers)
 IT 218151-78-1, 1,2-Dimethyl-3-propylimidazolium iodide
 RL: TEM (Technical or engineered material use); USES (Uses)
 (battery redox electrolyte containing; low-temperature fabrication of
 dye-sensitized polymer electrodes by electrophoretic preparation
 of mesoporous TiO₂ layers)
 RN 218151-78-1 HCAPLUS
 CN 1H-Imidazolium, 1,2-dimethyl-3-propyl-, iodide (9CI) (CA INDEX NAME)



● I⁻

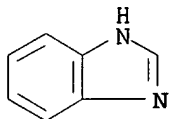
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
 RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L40 ANSWER 12 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:940665 HCAPLUS
 DN 142:117513
 TI Preparation of a tetraphenylporphyrinatocobalt(II)-poly(3,4-azopyridylene) complex and its oxygen enrichment effect at an oxygen electrode
 AU Shentu, Baoqing; Oyaizu, Kenichi; Nishide, Hiroyuki
 CS Department of Chemical Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China
 SO Journal of Materials Chemistry (2004), 14(22), 3308-3311
 CODEN: JMACEP; ISSN: 0959-9428
 PB Royal Society of Chemistry
 DT Journal
 LA English
 AB The reversible oxygen-binding properties of tetraphenylporphyrinatocobalt(II) (CoTPP) complexed with poly(3,4-azopyridylene) (PAP) were established. The CoTPP complexes functioned as oxygen carriers at the surface of a cathode to enhance the current for the reduction of oxygen. PAP was synthesized by the oxidative polymerization of 3,4-diaminopyridine in a DMF solution at 25 °C using a Cu/pyridine catalyst. The combination of the CoTPP complex and the conventional Pt/C catalyst resulted in a significant increase in the steady-state current for the four-electron reduction of O₂, particularly at small overpotentials where typical fuel cells operate, based on the facilitated transport of O₂ from the atmospheric to the catalyst at the electrode surface.
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72, 76
 IT **Battery** electrodes
 Fuel cell electrodes
 (for oxygen reduction; preparation of tetraphenylporphyrinatocobalt(II)-poly(3,4-azopyridylene) complex and its oxygen enrichment effect at oxygen electrode)
 IT 51-17-2D, Benzimidazole, complexes with tetraphenylporphyrinato cobalt 14172-90-8D, complexes with poly(3,4-diaminopyridine)
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (preparation of tetraphenylporphyrinatocobalt(II)-poly(3,4-azopyridylene) complex and its oxygen enrichment effect at oxygen electrode)
 IT 51-17-2D, Benzimidazole, complexes with tetraphenylporphyrinato cobalt
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (preparation of tetraphenylporphyrinatocobalt(II)-poly(3,4-azopyridylene)

complex and its oxygen enrichment effect at oxygen electrode)

RN 51-17-2 HCAPLUS

CN 1H-Benzimidazole (9CI) (CA INDEX NAME)



RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 13 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:905467 HCAPLUS

DN 141:382154

TI Electrode for electrochemical cell

IN Nobuta, Tomoki; Kamisuki, Hiroyuki; Mitani, Masaya; Kaneko, Shinako;
Yoshinari, Tetsuya; Nishiyama, Toshihiko; Takahashi, Naoki

PA Japan

SO U.S. Pat. Appl. Publ., 18 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004214081	A1	20041028	US 2004-827074	20040419
	JP 2004342595	A2	20041202	JP 2004-106720	20040331
	EP 1494303	A2	20050105	EP 2004-8403	20040407
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
	CN 1540780	A	20041027	CN 2004-10035118	20040423
PRAI	JP 2003-121274	A	20030425		

AB The present invention relates to an electrode for an electrochem. cell which comprises a cathode containing a **proton-conducting** compound as an electrode active material, an anode containing a **proton-conducting** compound as an electrode active material and an electrolyte containing a proton source, comprising a **proton-conducting** compound and an anion-exchange resin. This invention can be used to improve cycle-life properties and high-speed charge/discharge properties in an electrochem. cell.

IC ICM H01M004-60

INCL 429212000; 429213000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 72, 76

ST **battery** electrode; capacitor electrode

IT Anion exchangers

Battery electrodes

Capacitor electrodes

Secondary **batteries**

(electrode for electrochem. cell)

IT 220310-61-2, 5-Cyanoindole trimer

RL: DEV (Device component use); USES (Uses)

(electrode for electrochem. cell)

IT 220310-61-2, 5-Cyanoindole trimer

RL: DEV (Device component use); USES (Uses)

(electrode for electrochem. cell)

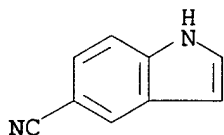
RN 220310-61-2 HCAPLUS

CN 1H-Indole-5-carbonitrile, trimer (9CI) (CA INDEX NAME)

CM 1

CRN 15861-24-2

CMF C9 H6 N2



L40 ANSWER 14 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:871280 HCAPLUS

DN 141:368313

TI Nonaqueous electrolyte **battery**

IN Takami, Norio; Saruwatari, Hidesato; Inagaki, Hirotaka

PA Toshiba Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 24 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004296108	A2	20041021	JP 2003-83133	20030325
PRAI	JP 2003-83133		20030325		

AB The **battery** has a cathode, an anode, and a nonaq. room temperature molten salt electrolyte containing Li⁺; where the cathode and/or anode contains metal oxide particles containing Al₂O₃, ZrO₂, and/or SiO₂ particles, having average primary particle diameter 1-100 nm. Another structure of the **battery** has a cathode, an anode, and a room temperature molten salt electrolyte containing Li⁺ and B[(OCO)₂]₂⁻. The molten salt preferably contains a tetravalent organic ammonium ion.

IC ICM H01M004-62

ICS H01M004-02; H01M004-06; H01M006-16; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST nonaq **battery** metal oxide electrode alumina zirconia silica; lithium salt molten salt electrolyte **battery**IT **Battery** electrodes

Particle size

(particle size of alumina or zirconia or silica containing metal oxide electrode active mass for nonaq. **batteries**)

IT 1313-13-9, Manganese dioxide, uses 12031-95-7, Lithium titanium oxide (Li₄Ti₅O₁₂) 12190-79-3, Cobalt lithium oxide (CoLiO₂) 15365-14-7, Iron lithium phosphate (FeLiPO₄)

RL: DEV (Device component use); USES (Uses)

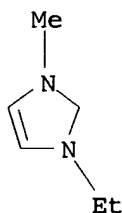
(particle size of alumina or zirconia or silica containing metal oxide electrode active mass for nonaq. **batteries**)

IT 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses

RL: MOA (Modifier or additive use); USES (Uses)

(particle size of alumina or zirconia or silica containing metal oxide

electrode active mass for nonaq. **batteries**)
 IT 14874-70-5 17341-24-1, uses 37181-39-8, Trifluoromethanesulfonate ion
 65039-03-4 98837-98-0 125579-65-9
 RL: DEV (Device component use); USES (Uses)
 (room temperature molten electrolytes for **batteries** using alumina
 or zirconia or silica containing metal oxide **electrode** active
 mass)
 IT 65039-03-4
 RL: DEV (Device component use); USES (Uses)
 (room temperature molten electrolytes for **batteries** using alumina
 or zirconia or silica containing metal oxide **electrode** active
 mass)
 RN 65039-03-4 HCAPLUS
 CN 1H-Imidazolium, 1-ethyl-3-methyl- (9CI) (CA INDEX NAME)



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 15 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:794599 HCAPLUS
 DN 141:298693
 TI Electrode and electrochemical cell therewith
 IN Nobuta, Tomoki; Kamisuki, Hiroyuki; Mitani, Masaya; Kaneko, Shinako;
 Yoshinari, Tetsuya
 PA NEC Tokin Corporation, Japan
 SO Brit. UK Pat. Appl., 47 pp.
 CODEN: BAXXDU
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2399938	A1	20040929	GB 2004-6023	20040317
	GB 2399938	B2	20050406		
	JP 2004311417	A2	20041104	JP 2004-68939	20040311
	US 2004191607	A1	20040930	US 2004-804891	20040319
	CN 1534811	A	20041006	CN 2004-10031391	20040326
PRAI	JP 2003-87872	A	20030327		

AB An electrode comprises a conductive porous substrate of a specified porosity (e.g., woven or non-woven carbon fiber sheet), the pores of which are filled with a mixture of an electroactive material, a conductive auxiliary filler and optionally a binder. The electroactive material may comprise a **proton conducting polymer** e.g., π -conjugated polymers such as polyquinoxalines, or a π -conjugated compound such as an indole trimer. The conductive auxiliary typically comprises particulate carbon or chopped carbon fibers and the binder typically comprises polyvinylidene fluoride. To prepare the electrode, the electroactive material, filler and binder may be blended and then dispersed in a suitable solvent e.g., DMF. The slurry is then applied to the porous substrate using a squeegee. The electrode is stated to be

useful for making secondary batteries or electrolytic double-layer capacitors.

IC ICM H01M004-60
ICS H01G009-155; H01M004-62; H01M004-96

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72, 76

ST electrode electrochem cell; battery electrode; elec double layer capacitor electrode

IT Battery electrodes
Capacitor electrodes
Porosity
Secondary batteries
(electrode and electrochem. cell therewith)

IT 7664-93-9, Sulfuric acid, uses 220310-61-2, 5-Cyanoindole trimer
RL: DEV (Device component use); USES (Uses)
(electrode and electrochem. cell therewith)

IT 220310-61-2, 5-Cyanoindole trimer
RL: DEV (Device component use); USES (Uses)
(electrode and electrochem. cell therewith)

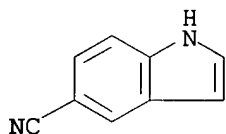
RN 220310-61-2 HCAPLUS

CN 1H-Indole-5-carbonitrile, trimer (9CI) (CA INDEX NAME)

CM 1

CRN 15861-24-2

CMF C9 H6 N2



RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 16 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:605443 HCAPLUS

DN 141:143194

TI Method of fabrication of membrane electrode unit for polymer electrolyte fuel cells

IN Melzner, Dieter; Reiche, Annette; Maehr, Ulrich; Kiel, Suzana

PA Sartorius Ag, Germany

SO Ger. Offen., 12 pp.
CODEN: GWXXBX

DT Patent

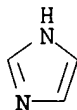
LA German

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10301810	A1	20040729	DE 2003-10301810	20030120
	WO 2004066428	A2	20040805	WO 2003-EP14623	20031219
	WO 2004066428	A3	20050818		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM,

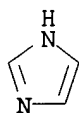
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,
 TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
 FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
 EP 1593172 A2 20051109 EP 2003-815370 20031219
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
 DE 202004000365 U1 20040422 DE 2004-202004000365 20040113
 PRAI DE 2003-10301810 A 20030120
 WO 2003-EP14623 W 20031219
 AB The invention concerns a membrane-electrode unit and polymer electrolyte
 fuel cell using the same for operating temperature $\leq 250^\circ$, as well
 as method of fabrication of the membrane. Membrane-electrode units of the
 polymer electrolyte fuel cells consist ≥ 2 laminar gas distribution
 electrodes and a sandwich-like polymer membrane (provided between the
 electrodes) with at least a basic polymer as well as a dopant, with which
 the gas distribution electrodes are in such a manner loaded that they
 represent a dopant reservoir for the polymer membrane, whereby the polymer
 membrane is **proton-conductively** and firmly tied up to
 the gas distribution electrodes over the dopant after the effect of
 pressure and temperature. In the doped condition, it shows a conductivity of at least
 0.1 S/m at a temperature of $< 25^\circ$. The invention is applicable directly
 for stationary and mobile power generation from chemical energy.
 IC ICM H01M008-02
 CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy
 Technology)
 Section cross-reference(s): 38
 IT 129-00-0D, Pyrene, tetraaza derivs., polymers 298-07-7,
 Bis(2-ethylhexyl) phosphate 838-85-7, Diphenylphosphate 25013-01-8,
 Polypyridine 82370-43-2, Polyimidazole 128611-69-8,
 1,3,4-Thiadiazole homopolymer 190201-51-5, Pyrimidine, homopolymer
 RL: DEV (Device component use); USES (Uses)
 (method of fabrication of membrane **electrode** unit for polymer
 electrolyte fuel cells)
 IT 82370-43-2, Polyimidazole
 RL: DEV (Device component use); USES (Uses)
 (method of fabrication of membrane **electrode** unit for polymer
 electrolyte fuel cells)
 RN 82370-43-2 HCAPLUS
 CN 1H-Imidazole, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 288-32-4
 CMF C3 H4 N2



L40 ANSWER 17 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:328921 HCAPLUS
 DN 140:342159
 TI Polymer membranes for a membrane-electrode unit for fuel cell

PA Sartorius A.-G., Germany
 SO Ger. Gebrauchsmusterschrift, 12 pp.
 CODEN: GGXXFR
 DT Patent
 LA German
 FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 202004000365	U1	20040422	DE 2004-202004000365	20040113
	DE 10301810	A1	20040729	DE 2003-10301810	20030120
PRAI	DE 2003-10301810	IA	20030120		
AB	A membrane-electrode unit for polymer electrolyte fuel cells with an operating temperature $\leq 250^\circ$ consists at least of two laminar gas distribution electrodes and a sandwich-like in-between arranged polymer membrane with ≥ 1 basic polymer as well as a dopant, provided between them. The gas distribution electrodes are so charged that they represent a dopant reservoir for the polymer membrane, whereby the polymer membrane is proton-conductive and firmly tied up to the gas distribution electrodes over the dopant after effect of pressure and temperature and has in the doped condition a conductivity of at least 0.1 S/m at a temperature of $>25^\circ$.				
IC	ICM H01M008-02				
CC	52-2 (Electrochemical , Radiational, and Thermal Energy Technology)				
	Section cross-reference(s): 38				
IT	298-07-7, Di(2-ethylhexyl) phosphate 838-85-7, Diphenyl phosphate 7440-06-4, Platinum, uses 7664-38-2D, Phosphoric acid, diester 25013-01-8, Polypyridine 82370-43-2, Polyimidazole 128611-69-8, 1,3,4-Thiadiazole homopolymer 190201-51-5, Pyrimidine homopolymer				
	RL: DEV (Device component use); USES (Uses) (polymer membranes for membrane-electrode unit for fuel cell)				
IT	82370-43-2, Polyimidazole				
	RL: DEV (Device component use); USES (Uses) (polymer membranes for membrane-electrode unit for fuel cell)				
RN	82370-43-2 HCAPLUS				
CN	1H-Imidazole, homopolymer (9CI) (CA INDEX NAME)				
CM	1				
CRN	288-32-4				
CMF	C3 H4 N2				



L40 ANSWER 18 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:160001 HCAPLUS
 DN 140:202420
 TI Coating solution for electrode fabrication, the electrode using the solution, and **battery**
 IN Murakami, Hiroyasu; Emoto, Hiroki
 PA Mitsubishi Chemical Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 31 pp.
 CODEN: JKXXAF

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004063423	A2	20040226	JP 2002-224010	20020731
PRAI	JP 2002-224010		20020731		

AB The solution contains a binder and a carbonaceous material in a solvent; and furthermore, comprises a polymer 1-10000 ppm (based on total weight of the solution) with a N containing five-membered ring structured side chain. The electrode is obtained by applying the above solution on a collector and removing the solvent. The **battery**, preferably a secondary lithium **battery**, has a cathode and/or an anode using the above electrode.

IC ICM H01M004-04
ICS H01M004-02; H01M010-40; B05D007-00

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** electrode coating soln carbonaceous material polymer; nitrogen contg five membered ring structured polymer **battery** electrode

IT **Battery** electrodes
(carbonaceous coating solns. having N containing five-membered ring structured polymers with controlled amount for **battery** electrodes)

IT Carbon black, uses
Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(carbonaceous coating solns. having N containing five-membered ring structured polymers with controlled amount for **battery** electrodes)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7782-42-5, Graphite, uses 9003-39-8, Polyvinyl pyrrolidone 21324-40-3, Lithium hexafluorophosphate 24937-79-9, PVDF 25086-89-9, Vinyl acetate-vinyl pyrrolidone copolymer 29297-55-0, Vinyl imidazole-vinyl pyrrolidone copolymer 57636-10-9 608139-20-4, Aluminum cobalt lithium nickel oxide (Al_{0.02}Co_{0.15}LiNi_{0.82}O₂)
RL: DEV (Device component use); USES (Uses)
(carbonaceous coating solns. having N containing five-membered ring structured polymers with controlled amount for **battery** electrodes)

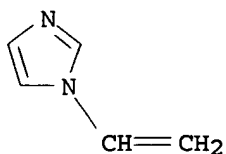
IT 29297-55-0, Vinyl imidazole-vinyl pyrrolidone copolymer
RL: DEV (Device component use); USES (Uses)
(carbonaceous coating solns. having N containing five-membered ring structured polymers with controlled amount for **battery** electrodes)

RN 29297-55-0 HCAPLUS

CN 2-Pyrrolidinone, 1-ethenyl-, polymer with 1-ethenyl-1H-imidazole (9CI)
(CA INDEX NAME)

CM 1

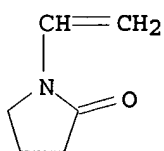
CRN 1072-63-5
CMF C5 H6 N2



CM 2

CRN 88-12-0

CMF C6 H9 N O



L40 ANSWER 19 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:154655 HCAPLUS

DN 140:184729

TI Fuel cells using trimers of indole derivatives

IN Maeda, Shinichi; Saito, Takashi

PA Mitsubishi Rayon Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.

CODEN: JKXXAF

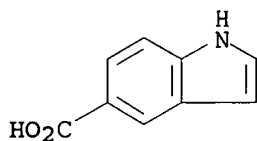
DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004063137	A2	20040226	JP 2002-216861	20020725
PRAI	JP 2002-216861		20020725		
OS	MARPAT 140:184729				
AB	Fuel cells have a pair of electrodes sandwiching a proton-conductive polymer electrolyte membrane and a pair of electrodes having gas passages, wherein trimers of indole derivs. are used as catalysts at least in one of the electrodes. The fuel cells have high power generation efficiency and power d.				
IC	ICM H01M004-90 ICS B01J031-04; H01M008-10				
CC	52-2 (Electrochemical , Radiational, and Thermal Energy Technology) Section cross-reference(s): 67, 76				
IT	220310-62-3, Indole-5-carboxylic acid trimer RL: DEV (Device component use); USES (Uses) (fuel cells using electrode catalysts containing trimers of indole derivs.)				
IT	220310-62-3, Indole-5-carboxylic acid trimer RL: DEV (Device component use); USES (Uses) (fuel cells using electrode catalysts containing trimers of indole derivs.)				
RN	220310-62-3 HCAPLUS				
CN	1H-Indole-5-carboxylic acid, trimer (9CI) (CA INDEX NAME)				

CM 1

CRN 1670-81-1
CMF C9 H7 N O2

L40 ANSWER 20 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2004:117315 HCAPLUS

DN 140:149157

TI An electrode for an electrochemical cell like a secondary **battery**
and an electric double layer capacitorIN Nobuta, Tomoki; Nishiyama, Toshihiko; Kamisuki, Hiroyuki; Kaneko, Shinako;
Kurosaki, Masato; Nakagawa, Yuji; Mitani, Masaya

PA NEC Tokin Corporation, Japan

SO Eur. Pat. Appl., 20 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1388906	A2	20040211	EP 2003-16458	20030722
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004127920	A2	20040422	JP 2003-198660	20030717
	JP 3701952	B2	20051005		
	CN 1481042	A	20040310	CN 2003-152651	20030804
	US 2004029003	A1	20040212	US 2003-634607	20030805
	HK 1060654	A1	20051125	HK 2004-102952	20040427
PRAI	JP 2002-227160	A	20020805		

AB This invention provides an electrode for an electrochem. cell in which an active material in an electrode material is a **proton-conducting** compound, wherein the electrode material comprises a nitrogen-containing heterocyclic compound or a polymer having a unit containing a nitrogen-containing heterocyclic moiety.

IC ICM H01M004-60

ICS H01M004-02

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 27, 38, 72, 76

ST **battery** electrode nitrogen contg heterocyclic compd; elec double layer capacitor electrode nitrogen contg heterocyclic compd

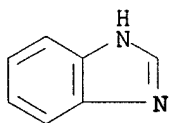
IT Capacitors

(double layer; electrode for electrochem. cell like secondary **battery** and elec. double layer capacitor)IT **Battery** cathodes**Battery** electrodes

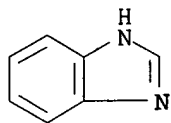
Capacitor electrodes

Secondary **batteries**(electrode for electrochem. cell like secondary **battery** and elec. double layer capacitor)*Applicants*

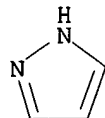
- IT Carbon black, uses
Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(electrode for electrochem. cell like secondary **battery** and
elec. double layer capacitor)
- IT Heterocyclic compounds
RL: DEV (Device component use); USES (Uses)
(nitrogen; electrode for electrochem. cell like secondary
battery and elec. double layer capacitor)
- IT Heterocyclic compounds
RL: DEV (Device component use); USES (Uses)
(polymers, nitrogen-containing; electrode for electrochem. cell like
secondary **battery** and elec. double layer capacitor)
- IT Polyquinoxalines
RL: DEV (Device component use); USES (Uses)
(polyphenylquinoxalines; electrode for electrochem. cell like secondary
battery and elec. double layer capacitor)
- IT 51-17-2, Benzimidazole 51-17-2D, Benzimidazole, derivative
288-13-1, Pyrazole 288-13-1D, Pyrazole, derivative
288-32-4, Imidazole, uses 288-32-4D, Imidazole, derivative
288-88-0, 1H-1,2,4-Triazole 670-96-2, 2-Phenylimidazole
20154-03-4, 3-Trifluoromethylpyrazole 25232-42-2;
Polyvinylimidazole 37306-44-8, Triazole 37306-44-8D, Triazole, derivative
420784-28-7, 1H-Indole trimer 652968-46-2 652968-47-3
652968-48-4
RL: DEV (Device component use); USES (Uses)
(electrode for electrochem. cell like secondary
battery and elec. double layer capacitor)
- IT 24937-79-9, Polyfluorovinylidene
RL: MOA (Modifier or additive use); USES (Uses)
(electrode for electrochem. cell like secondary **battery** and
elec. double layer capacitor)
- IT 7440-44-0, Carbon, uses
RL: MOA (Modifier or additive use); USES (Uses)
(vapor-grown; electrode for electrochem. cell like secondary
battery and elec. double layer capacitor)
- IT 51-17-2, Benzimidazole 51-17-2D, Benzimidazole, derivative
288-13-1, Pyrazole 288-13-1D, Pyrazole, derivative
288-32-4, Imidazole, uses 288-32-4D, Imidazole, derivative
288-88-0, 1H-1,2,4-Triazole 670-96-2, 2-Phenylimidazole
20154-03-4, 3-Trifluoromethylpyrazole 25232-42-2,
Polyvinylimidazole 420784-28-7, 1H-Indole trimer
652968-46-2 652968-48-4
RL: DEV (Device component use); USES (Uses)
(electrode for electrochem. cell like secondary
battery and elec. double layer capacitor)
- RN 51-17-2 HCAPLUS
CN 1H-Benzimidazole (9CI) (CA INDEX NAME)



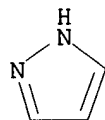
- RN 51-17-2 HCAPLUS
CN 1H-Benzimidazole (9CI) (CA INDEX NAME)



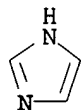
RN 288-13-1 HCAPLUS
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



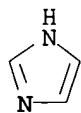
RN 288-13-1 HCAPLUS
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



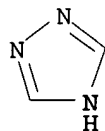
RN 288-32-4 HCAPLUS
CN 1H-Imidazole (9CI) (CA INDEX NAME)



RN 288-32-4 HCAPLUS
CN 1H-Imidazole (9CI) (CA INDEX NAME)

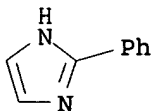


RN 288-88-0 HCAPLUS
CN 1H-1,2,4-Triazole (7CI, 9CI) (CA INDEX NAME)



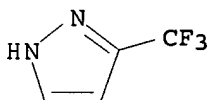
RN 670-96-2 HCAPLUS

CN 1H-Imidazole, 2-phenyl- (9CI) (CA INDEX NAME)



RN 20154-03-4 HCAPLUS

CN 1H-Pyrazole, 3-(trifluoromethyl)- (9CI) (CA INDEX NAME)



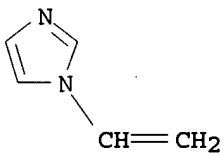
RN 25232-42-2 HCAPLUS

CN 1H-Imidazole, 1-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1072-63-5

CMF C5 H6 N2



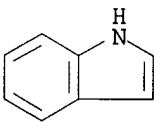
RN 420784-28-7 HCAPLUS

CN 1H-Indole, trimer (9CI) (CA INDEX NAME)

CM 1

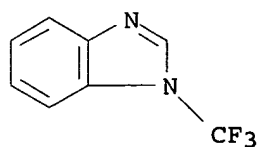
CRN 120-72-9

CMF C8 H7 N



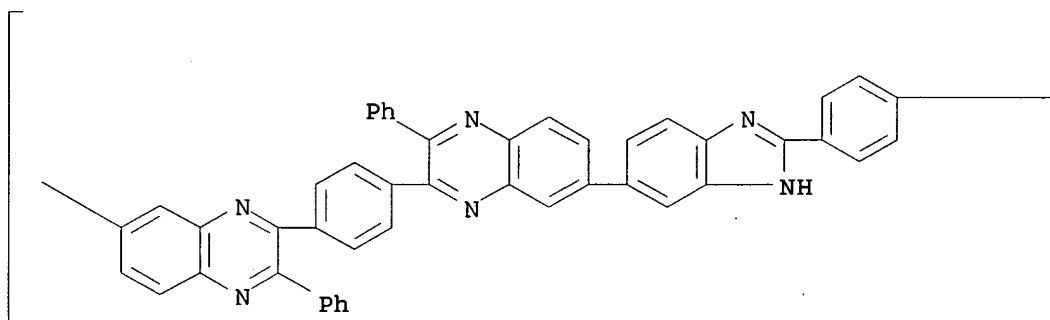
RN 652968-46-2 HCAPLUS

CN 1H-Benzimidazole, 1-(trifluoromethyl)- (9CI) (CA INDEX NAME)

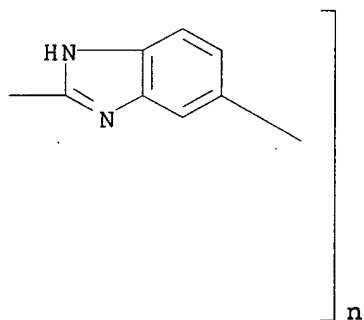


RN 652968-48-4 HCAPLUS
 CN Poly[(3-phenyl-7,2-quinoxalinediyl)-1,4-phenylene(3-phenyl-2,7-quinoxalinediyl)-1H-benzimidazole-5,2-diyl-1,4-phenylene-1H-benzimidazole-2,5-diyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L40 ANSWER 21 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2004:57897 HCAPLUS
 DN 140:131078
 TI Electrode for secondary battery, its manufacture and the
 battery
 IN Koyama, Hiroshi
 PA Toyota Motor Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004022294	A2	20040122	JP 2002-174550	20020614
PRAI	JP 2002-174550		20020614		

AB The electrode is manufactured by preparing an electrode paste containing an active mass and an ordinary-temperature molten salt; and forming an active mass layer by using the paste. The electrode has an active mass layer containing an active mass and an ordinary-temperature molten salt; where the particle pores of the active mass are debubbled. The **battery** has an ordinary-temperature molten salt based electrolyte layer between a cathode and an anode; where the cathode and/or the anode uses the above electrode.

IC ICM H01M004-02
ICS H01M004-62; H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary **battery** ordinary temp molten salt electrode manuf

IT **Battery** electrodes
Secondary **batteries**
(manufacture of electrodes containing ordinary-temperature molten salts for secondary **batteries**)

IT 12031-95-7, Lithium titanium oxide (Li₄Ti₅O₁₂)
RL: DEV (Device component use); USES (Uses)
(anode; manufacture of electrodes containing ordinary-temperature molten salts for secondary **batteries**)

IT 12190-79-3, Cobalt lithium oxide (CoLiO₂)
RL: DEV (Device component use); USES (Uses)
(cathode; manufacture of electrodes containing ordinary-temperature molten salts for secondary **batteries**)

IT 25013-01-8, Polypyridine 90076-65-6 **174899-82-2**
RL: DEV (Device component use); USES (Uses)
(manufacture of **electrodes** containing ordinary-temperature molten salts for secondary **batteries**)

IT **174899-82-2**
RL: DEV (Device component use); USES (Uses)
(manufacture of **electrodes** containing ordinary-temperature molten salts for secondary **batteries**)

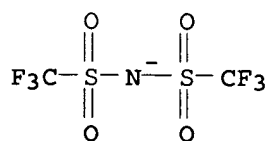
RN 174899-82-2 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 98837-98-0

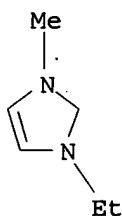
CMF C2 F6 N O4 S2



CM 2

CRN 65039-03-4

CMF C6 H11 N2

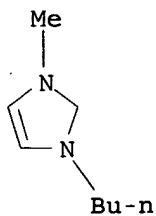


ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 22 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2003:897099 HCAPLUS
 DN 140:382217
 TI Investigation of ionic liquids as electrolytes for carbon nanotube electrodes
 AU Barisci, J. N.; Wallace, G. G.; MacFarlane, D. R.; Baughman, R. H.
 CS Department of Chemistry, University of Wollongong, Wollongong, 2522, Australia
 SO Electrochemistry Communications (2004), 6(1), 22-27
 CODEN: ECCMF9; ISSN: 1388-2481
 PB Elsevier Science B.V.
 DT Journal
 LA English
 AB The use of ionic liqs. (IL) as electrolytes for electrochem. applications involving carbon nanotube (CNT) electrodes has been investigated in a brief initial study. The use of IL electrolytes in conjunction with CNT electrodes has proved possible and advantageous. Ionic liqs. provide relatively high conductivity, wide potential window (up to 5.5 V) along with chemical stability and nonvolatile nature. While some decrease in the electrode capacitance and charging rate are observed in IL with respect to conventional electrolytes, the magnitude of the decrease is not substantial. The general well defined electrochem. behavior of CNT electrodes in IL, coupled to the wide potential window and other advantages of these electrolytes, suggest new avenues for the design of capacitors, batteries and electromech. actuators.
 CC 72-2 (Electrochemistry)
 IT 3109-63-5, Tetrabutylammonium hexafluorophosphate 174501-64-5 174899-82-2 223437-05-6 370865-89-7, 1-Ethyl-3-methylimidazolium dicyanamide
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses) (electrolytes for carbon nanotube electrodes)
 IT 123-75-1D, Pyrrolidine, derivs. 288-32-4D, Imidazole, derivs. 16722-51-3, p-Toluenesulfonate, uses 16919-18-9, Hexafluorophosphate 17997-40-9 98837-98-0
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses) (ionic liquid containing; ionic liqs. as electrolytes for carbon nanotube electrodes)
 IT 174501-64-5 174899-82-2 370865-89-7, 1-Ethyl-3-methylimidazolium dicyanamide
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses) (electrolytes for carbon nanotube electrodes)
 RN 174501-64-5 HCAPLUS
 CN 1H-Imidazolium, 1-butyl-3-methyl-, hexafluorophosphate(1-) (9CI) (CA INDEX NAME)

CM 1

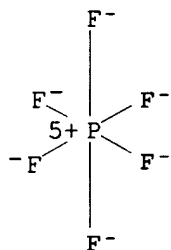
CRN 80432-08-2
CMF C8 H15 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

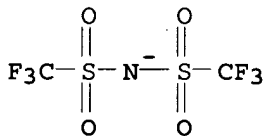
CRN 16919-18-9
CMF F6 P
CCI CCS



RN 174899-82-2 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with 1,1,1-trifluoro-N-
[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

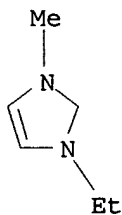
CM 1

CRN 98837-98-0
CMF C2 F6 N O4 S2



CM 2

CRN 65039-03-4
CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

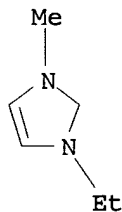
RN 370865-89-7 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with cyanocyanamide (1:1) (9CI)
(CA INDEX NAME)

CM 1

CRN 65039-03-4

CMF C6 H11 N2

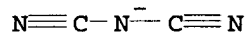


ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 17997-40-9

CMF C2 N3

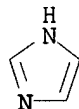


IT 288-32-4D, Imidazole, derivs.

RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(ionic liquid containing; ionic liqs. as electrolytes for carbon nanotube
electrodes)

RN 288-32-4 HCAPLUS

CN 1H-Imidazole (9CI) (CA INDEX NAME)



RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 23 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2003:875559 HCAPLUS
 DN 139:367552
 TI Multilayered electrolyte-electrode membrane assemblies containing mineral acids, basic polymers, and a cation exchange-type barrier coating
 IN Uensal, Oemer; Kiefer, Joachim
 PA Celanese Ventures GmbH, Germany; Pemeas GmbH
 SO PCT Int. Appl., 49 pp.
 CODEN: PIXXD2
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003092090	A2	20031106	WO 2003-EP4117	20030422
	WO 2003092090	A3	20050120		
	W: BR, CA, CN, JP, KR, MX, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
	DE 10218368	A1	20031106	DE 2002-10218368	20020425
	DE 10218367	A1	20031113	DE 2002-10218367	20020425
	CA 2483015	AA	20031106	CA 2003-2483015	20030422
	EP 1518282	A2	20050330	EP 2003-718780	20030422
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
	US 2005181254	A1	20050818	US 2003-512264	20030422
	JP 2005527948	T2	20050915	JP 2004-500346	20030422
PRAI	DE 2002-10218367	A	20020425		
	DE 2002-10218368	A	20020425		
	WO 2003-EP4117	W	20030422		

AB **Proton-conducting** multi-layered electrolyte membranes for fuel cells are characterized by at least one mineral acid-doped or mineral acid-containing flat surfaces and a barrier layer for the other layer, which, together, make up a membrane electrode assembly. Preferred mineral acids include H₃PO₄, H₂SO₄, and polyphosphoric acids. The barrier layer, which preferably consists of a cation exchanger with cation-exchange capacity <0.9 meq/g and a **proton conductivity** <0.06 S/cm, has a thickness of 10-30 µm (preferably <10 µm). The flat surfaces of the membrane consist of a basic polymer (or a basic polymer integrated with a second polymer or an inert support), selected from polyimidazoles, polybenzimidazoles, polybenzthiazoles, polybenzoxazoles, polytriazoles, polyoxadiazoles, polythiadiazoles, polypyrazoles, polyquinoxalines, polypyridines, polypyrimidines, or poly(tetraazapyrenes). Such multilayer electrolyte membranes prevents mineral acid from being washed out and reduces the overvoltage on the cathode.

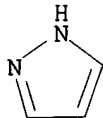
IC ICM H01M
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

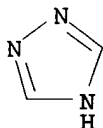
IT 110-86-1D, Pyridine, derivs., polymers 288-13-1D, Pyrazole, derivs., polymers 288-88-0D, 1H-1,2,4-Triazole, derivs., polymers 289-06-5D, Thiadiazole, derivs., polymers 289-95-2D, Pyrimidine, derivs., polymers 7258-75-5D, Pyrimido[4,5,6-gh]perimidine, 1,6-dihydro-, derivs., polymers 27380-27-4D, Pek, sulfonated
 RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(membranes; multilayered electrolyte-electrode membrane assemblies containing mineral acids, basic polymers, and a cation exchange-type barrier coating)

IT 288-13-1D, Pyrazole, derivs., polymers 288-88-0D,
1H-1,2,4-Triazole, derivs., polymers
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(membranes; multilayered electrolyte-electrode membrane
assemblies containing mineral acids, basic polymers, and a cation
exchange-type barrier coating)
RN 288-13-1 HCAPLUS
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



RN 288-88-0 HCAPLUS
CN 1H-1,2,4-Triazole (7CI, 9CI) (CA INDEX NAME)



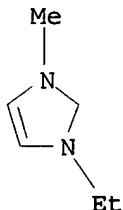
L40 ANSWER 24 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:684173 HCAPLUS
DN 139:367420
TI Negative electrode for lithium **battery** in room temperature
molten salt
AU Fung, Y. S.; Zhu, D. R.
CS Department of Chemistry, The University of Hong Kong, Hong Kong, Peop.
Rep. China
SO Proceedings - Electrochemical Society (2002), 2002-19(Molten Salts XIII),
75-86
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB Al-coated graphite electrode and tin-coated copper electrodes were prepared
and studied as neg. electrodes in LiCl buffered room temperature molten salts
(RTMS) based on 1-methyl-3-ethylimidazolium chloride (MEICl) for lithium
battery applications. The graphite electrode coated with Al in
acidic AlCl₃-MEICl melt at 4 mA/cm² shows an increase in the reversible
capacity from 26% to 57% in the 1st cycle and an improvement in the
cycling performance. This is attributed to the suppression of side
reactions by the Al film at the surface of the graphite. The copper
electrode coated with a thin film of tin electrodeposited from a new RTMS
consisting of AlCl₃/MEICl/SnCl₂ shows an average capacity of 140 mAh/g,
coulombic efficiency around 85 %, and >200 cycles at low c.d. of 0.4
mA/cm². The performance of the Al-coated and tin-coated electrodes are
discussed and compared.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy
Technology)
Section cross-reference(s): 72, 76
ST lithium **battery** electrode ionic liq imidazolium aluminum tin

coating
IT Intercalation
(battery charging-discharging capacity; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT Intercalation
(deintercalation, battery charging-discharging capacity; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT Secondary batteries
(lithium; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT Battery cathodes
Cyclic voltammetry
Ionic liquids
(neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 7446-70-0, Aluminum chloride (AlCl₃), uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(blends with 1-methyl-3-ethylimidazolium chloride and also with SnCl₂, electrolytes; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 7772-99-8, Tin chloride (SnCl₂), uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(blends with AlCl₃/1-methyl-3-ethylimidazolium chloride, electrolyte; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(blends with chlorides, electrolyte; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 7447-41-8, Lithium chloride (LiCl), uses
RL: DEV (Device component use); USES (Uses)
(blends with imidazolium and other chlorides, electrolyte; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 53680-59-4
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(formed during cycling on tin-coated electrodes; neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 7439-93-2, Lithium, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 7440-50-8, Copper, uses 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 7429-90-5, Aluminum, uses 7440-31-5, Tin, uses
RL: DEV (Device component use); FMU (Formation, unclassified); FORM (Formation, nonpreparative); USES (Uses)
(neg. electrodes for lithium secondary batteries in imidazolium - based room temperature molten salt)
IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride

RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (blends with chlorides, electrolyte; neg. **electrodes** for lithium secondary **batteries** in imidazolium - based room temperature molten salt)

RN 65039-09-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
 RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 25 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:675770 HCAPLUS

DN 139:216906

TI Electrochemical apparatus

IN Fuchigami, Kazuo; Atobe, Masato; Ishii, Hideki; Sekiguchi, Kei; Takada, Naokado

PA Central Glass Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

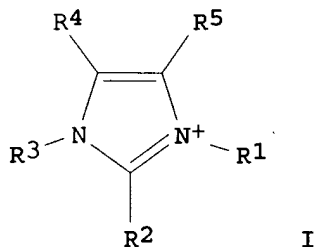
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

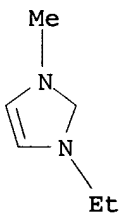
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 2003243028	A2	20030829	JP 2002-36172	20020214
PRAI	JP 2002-36172		20020214		
GI					



AB The apparatus, e.g., **batteries**, double layer capacitors, electrochromic display devices, has an ion conductor between a cathode and

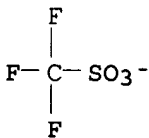
an anode; where conducting polymers are used for either or both electrodes are, and an ionic liquid is used for the ion conductor. The conducting polymer is selected from polypyrrole, polythiophene, and their derivs.; and the ionic liquid contains anions of formula: $[C_xF_{2x+1}SO_3]^-$, $[N(SO_2C_xF_{2x+1})(SO_2C_yF_{2y+1})]^-$, $[C(SO_2C_xF_{2x+1})(SO_2C_yF_{2y+1})(SO_2C_zF_{2z+1})]^-$ (x, y, and z = an integer of 1-8) and cations I (R1-5 = H or C1-20 alkyl groups).

IC ICM H01M010-40
ICS H01G009-058; H01M004-02; H01M004-60
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 74, 76
IT Electrochromic imaging devices
Secondary batteries
(lithium fluorocarbonsulfonate electrolyte and conducting polymer electrodes for electrochem. devices)
IT 25233-34-5, Polythiophene 30604-81-0, Polypyrrole 145022-44-2
268536-05-6
RL: DEV (Device component use); USES (Uses)
(lithium fluorocarbonsulfonate electrolyte and conducting polymer electrodes for electrochem. devices)
IT 145022-44-2
RL: DEV (Device component use); USES (Uses)
(lithium fluorocarbonsulfonate electrolyte and conducting polymer electrodes for electrochem. devices)
RN 145022-44-2 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)
CM 1
CRN 65039-03-4
CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2
CRN 37181-39-8
CMF C F3 O3 S



L40 ANSWER 26 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:550636 HCAPLUS

DN 139:103769

TI Polymer electrolyte fuel cells employing conducting redox polymers as electrode catalysts

IN Ishibashi, Kuniaki; Abe, Masao

PA Nitto Denko Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003203642	A2	20030718	JP 2002-73	20020104
PRAI	JP 2002-73		20020104		

AB The fuel cell employs a conducting redox polymer as an electrode catalyst, which is bonded with a conductive substrate by using a proton-exchange organic polymer binder. In the fuel cell, an inorg. redox catalyst may also be included in addition to the conducting redox polymer as the electrode catalysts. The fuel cell shows high electromotive force and high discharge d.

IC ICM H01M004-90

ICS H01M004-86; H01M004-94; H01M008-10

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 67, 76

ST fuel cell electrode redox catalyst conducting polymer; **proton** exchange **conducting** polymer binder fuel cell electrode; doped conducting polymer redox catalyst fuel cell electrode; polyaniline conductive polymer fuel cell electrode catalyst; polypyridine conductive polymer fuel cell electrode catalyst; polyindole conductive polymer fuel cell electrode catalyst; Polyphenylquinoxaline conductive polymer fuel cell electrode catalyst

IT Fuel cell electrodes

(conducting polymer redox catalysts in; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)

IT Redox reaction catalysts

(conducting polymers; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)

IT Polyoxyalkylenes, uses

RL: DEV (Device component use); USES (Uses)

(fluorine- and sulfo-containing, ionomers, Nafion, **proton**-exchange **conducting** binder in electrodes; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)

IT Phenolic resins, uses

RL: CAT (Catalyst use); DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(novolak, phenolsulfonic acid-based; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)

IT Doping

(of conducting redox polymer; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**

- exchange **conducting** polymer as electrode binder)
- IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylene-, sulfo-containing, ionomers, Nafion, **proton**-exchange **conducting** binder in electrodes; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Ionomers
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-containing, Nafion, **proton**-exchange **conducting** binder in electrodes; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Polyquinoxalines
RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
(polyphenylquinoxalines, electrode redox catalyst; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Polyanilines
RL: CAT (Catalyst use); DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(polyvinylsulfonic acid-doped, electrode redox catalyst; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Cation exchangers
(**proton**-, **conducting** polymers, as binder in electrodes; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Binders
(**proton**-exchange **conducting** polymer; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Transition metal oxides
RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
(redox catalysts in electrodes; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Conducting polymers
(redox catalysts; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT Fuel cells
(solid electrolyte, polymer electrolyte; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT 50973-35-8, Formaldehyde-phenolsulfonic acid copolymer
RL: CAT (Catalyst use); DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(dopant, in polyaniline electrode redox catalyst; polymer electrolyte fuel cells containing conducting redox polymer as electrode catalyst and **proton**-exchange **conducting** polymer as electrode binder)
- IT 25013-01-8, Polypyridine 82451-55-6, Polyindole

RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
 (electrode redox catalyst; polymer electrolyte fuel cells
 containing conducting redox polymer as electrode catalyst and
 proton-exchange conducting polymer as
 electrode binder)

IT 25233-30-1P, Polyaniline

RL: CAT (Catalyst use); DEV (Device component use); IMF (Industrial
 manufacture); PREP (Preparation); USES (Uses)
 (polyvinylsulfonic acid-doped, electrode redox catalyst; polymer
 electrolyte fuel cells containing conducting redox polymer as electrode
 catalyst and proton-exchange conducting polymer as
 electrode binder)

IT 7439-89-6, Iron, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel,
 uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6,
 Rhodium, uses 7440-18-8, Ruthenium, uses 7440-22-4, Silver, uses
 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses

RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
 (redox catalysts in electrodes; polymer electrolyte fuel cells containing
 conducting redox polymer as electrode catalyst and proton
 -exchange conducting polymer as electrode binder)

IT 82451-55-6, Polyindole

RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
 (electrode redox catalyst; polymer electrolyte fuel cells
 containing conducting redox polymer as electrode catalyst and
 proton-exchange conducting polymer as
 electrode binder)

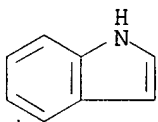
RN 82451-55-6 HCAPLUS

CN 1H-Indole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 120-72-9

CMF C8 H7 N



L40 ANSWER 27 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:417542 HCAPLUS

DN 139:9292

TI Lithium battery comprising at least a bipolar electrode with
 conducting substrates of aluminum or aluminum alloy

IN Martinet, Sebastien; Le Cras, Frederic

PA Commissariat a l'Energie Atomique, Fr.

SO Fr. Demande, 30 pp.

CODEN: FRXXBL

DT Patent

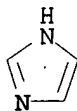
LA French

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	FR 2832859	A1	20030530	FR 2001-15377	20011128
	FR 2832859	B1	20040109		
	WO 2003047021	A2	20030605	WO 2002-FR4066	20021127

WO 2003047021 A3 20040930
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
EP 1493202 A2 20050105 EP 2002-803836 20021127
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK
JP 2005539347 T2 20051222 JP 2003-548334 20021127
US 2005069768 A1 20050331 US 2004-495733 20040514
PRAI FR 2001-15377 A 20011128
WO 2002-FR4066 W 20021127
AB A lithium electrochem. generator (i.e., **battery**) contains two peripheral electrodes (one pos. and one neg.) that contact active material beds, each of which, in turn, contacts a separator. Between the two separators is at least one bipolar electrode sandwiched between active neg. and active pos. bed materials. The elec. conducting substrates are aluminum or an aluminum alloy. A suitable neg. active material is Li₄Ti₅O₁₂; suitable pos. active materials are transition metal phosphates, orthosilicates, and oxides, as well as carbon or non-metal salts (especially phosphates such as Li(Fe,Mn)PO₄ or LiCoPO₄ and oxides such as LiAl_xNi_{1-x}O₂ (x = 0-0.25)). The separators can also contain an ionic liquid (i.e., imidazolium, dialkylimidazolium, alkylpyridinium, and dialkylpyridinium chloroaluminate and alkylchloroaluminate salts) that includes a dissolved lithium salt.
IC ICM H01M010-38
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium **battery** bipolar electrode; aluminum alloy lithium **battery** bipolar electrode
IT Pyridinium compounds
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses) (**battery** electrolytes containing; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
IT **Battery** electrodes (bipolar; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
IT Ionic liquids (electrolytes; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
IT Onium compounds
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses) (imidazolium compds., **battery** electrolytes containing; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
IT **Battery** electrolytes (ionic liqs.; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
IT Secondary **battery** separators (lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
IT Aluminum alloy, base
RL: DEV (Device component use); USES (Uses)

- (elec. conducting substrates; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
- IT 110-86-1D, Pyridine, alkyl derivs., salts 288-32-4D, 1H-Imidazole, alkyl derivs., salts
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(**battery** electrolytes containing; lithium **battery** comprising at least a bipolar **electrode** with conducting substrates of aluminum or aluminum alloy)
- IT 13824-63-0, Cobalt lithium phosphate (CoLiPO₄) 19414-36-9, Iron lithium manganese phosphate ((Fe,Mn)Li(PO₄)) 532934-10-4, Aluminum lithium nickel oxide (Al₀-0.25LiNi_{0.75}-102)
RL: DEV (Device component use); USES (Uses)
(bipolar electrode; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
- IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(elec. conducting substrates; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
- IT 532934-12-6, Lithium nitride oxide phosphide (Li₃N_{0.3}O_{2.5}P)
RL: DEV (Device component use); USES (Uses)
(lithium cation conductor; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
- IT 12031-95-7, Lithium titanium oxide (Li₄Ti₅O₁₂)
RL: DEV (Device component use); USES (Uses)
(neg. active material; lithium **battery** comprising at least a bipolar electrode with conducting substrates of aluminum or aluminum alloy)
- IT 288-32-4D, 1H-Imidazole, alkyl derivs., salts
RL: DEV (Device component use); NUU (Other use, unclassified); USES (Uses)
(**battery** electrolytes containing; lithium **battery** comprising at least a bipolar **electrode** with conducting substrates of aluminum or aluminum alloy)
- RN 288-32-4 HCAPLUS
CN 1H-Imidazole (9CI) (CA INDEX NAME)

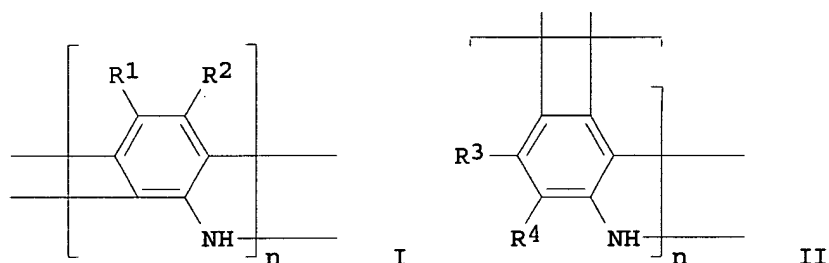


RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 28 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2003:401879 HCAPLUS
DN 138:404315
TI Indole compound having supermolecular structure and secondary **battery** and capacitor using it
IN Mori, Mitsuhiro; Naoi, Katsuhiko
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003155288	A2	20030527	JP 2001-354252	20011120
PRAI	JP 2001-354252		20011120		
OS	MARPAT 138:404315				
GI					

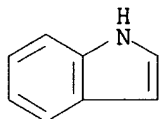


- AB The indole compound having a supermol. structure is represented by I and/or II [$n \geq 1$; R1-4 = H, halo, OH, nitro, sulfone, carboxyl, alkyl, cyano, nitro, amino, aryl, or (substituted) heterocyclic ring which may form condensed ring with benzene ring; when n is ≥ 2 , terminal groups of indoles have groups selected from R1-4]. Preferably, the indole compound is an indole trimer derivative having a layered structure. In the secondary **battery** and the capacitor, the electrode material or the electrolyte material contains 1-95 weight% of the indole compound having a layered structure. The indole compound has high and uniform elec. conductivity and high structural stability, and the **battery** and the capacitor have high energy d., power d., and safety.
- IC ICM C07D487-14
ICS H01G009-025; H01G009-058; H01M004-02; H01M004-60; H01M004-62; H01M010-40'
- CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 28, 76
- ST indole compd supermol structure elec cond; **battery** capacitor
indole trimer layered structure
- IT **Battery** electrodes
 Battery electrolytes
Capacitor electrodes
Electric conductors
Electrolytic capacitors
 (indole compound having supermol. structure for electrode or electrolyte of secondary **battery** and capacitor)
- IT 120-72-9, Indole, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
 (indole compound having supermol. structure for **electrode** or electrolyte of secondary **battery** and capacitor)
- IT 70381-95-2P
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (layered; indole compound having supermol. structure for electrode or electrolyte of secondary **battery** and capacitor)
- IT 120-72-9, Indole, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
 (indole compound having supermol. structure for **electrode** or

electrolyte of secondary battery and capacitor)

RN 120-72-9 HCAPLUS

CN 1H-Indole (9CI) (CA INDEX NAME)



L40 ANSWER 29 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:374007 HCAPLUS

DN 138:388133

TI Electrochemical cell which uses indole compound

IN Mitani, Katsuya; Nishiyama, Toshihiko; Kamito, Hiroyuki; Harada, Manabu; Kurosaki, Masato; Nakagawa, Yuji; Shinoda, Tomoki; Kaneko, Shinako

PA NEC Tokin Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

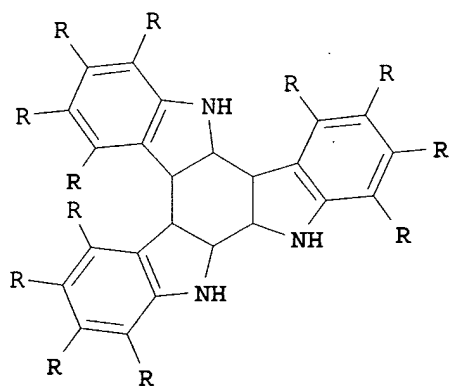
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003142099	A2	20030516	JP 2001-337837	20011102
	JP 3727264	B2	20051214		
	US 2003129490	A1	20030710	US 2002-286692	20021101
	US 6875541	B2	20050405		
PRAI	JP 2001-337837	A	20011102		
GI					



I

AB The title cell, especially for secondary batteries and capacitors, has an electrode active mass, containing a mixture of a trimer I bonded by position 2 and 3, and an indole (derivative) tetramer; and uses a proton as charge carrier.

IC ICM H01M004-60

ICS H01G009-038; H01G009-058; H01M004-02; H01M010-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

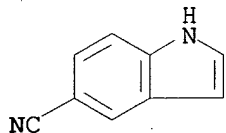
Section cross-reference(s): 76

ST secondary **battery** capacitor electrode indol trimer tetramer
IT Capacitor electrodes
(electrodes containing indole trimer compds. and tetramers for secondary **batteries** and capacitors)
IT **Battery** electrodes
(electrodes containing indole trimers and tetramers for secondary **batteries** and capacitors)
IT 7664-93-9, Sulfuric acid, uses
RL: DEV (Device component use); USES (Uses)
(diluted, electrolyte; electrodes containing indole trimer compds. and tetramers for secondary **batteries** and capacitors)
IT 164671-61-8 220310-61-2 403694-95-1 503269-69-0
527682-27-5 527682-32-2
RL: DEV (Device component use); USES (Uses)
(electrodes containing indole trimer compds. and tetramers for secondary **batteries** and capacitors)
IT 76-05-1, uses 108-32-7, Propylene carbonate 429-06-1,
Tetraethylammonium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(electrolyte; electrodes containing indole trimer compds. and tetramers for secondary **batteries** and capacitors)
IT 220310-61-2 503269-69-0 527682-27-5
527682-32-2
RL: DEV (Device component use); USES (Uses)
(electrodes containing indole trimer compds. and tetramers for secondary **batteries** and capacitors)
RN 220310-61-2 HCAPLUS
CN 1H-Indole-5-carbonitrile, trimer (9CI) (CA INDEX NAME)

CM 1

CRN 15861-24-2

CMF C9 H6 N2

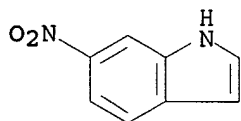


RN 503269-69-0 HCAPLUS
CN 1H-Indole, 6-nitro-, trimer (9CI) (CA INDEX NAME)

CM 1

CRN 4769-96-4

CMF C8 H6 N2 O2



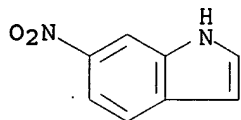
RN 527682-27-5 HCAPLUS

CN 1H-Indole, 6-nitro-, tetramer (9CI) (CA INDEX NAME)

CM 1

CRN 4769-96-4

CMF C8 H6 N2 O2



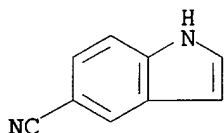
RN 527682-32-2 HCAPLUS

CN 1H-Indole-5-carbonitrile, tetramer (9CI) (CA INDEX NAME)

CM 1

CRN 15861-24-2

CMF C9 H6 N2



L40 ANSWER 30 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2003:373997 HCAPLUS

DN 138:388130

TI Electrode material by metal plating for secondary battery and its manufacture

IN Okuhama, Yoshiaki; Obata, Keigo; Yoshimoto, Masakazu; Kim, Dong-hyun; Kitamura, Shingo; Nawafune, Hidemi

PA Daiwa Kasei Kenkyusho K. K., Japan; Daiwa Fine Chemical Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003142088	A2	20030516	JP 2001-341814	20011107
	JP 3621370	B2	20050216		
PRAI	JP 2001-341814		20011107		

AB The electrode material, especially for a secondary battery anode, has a Sn or Sn alloy plated film on 1 or both side of a collector; where the film comprises continuous plated particles having average particle size <0.5 μ m, and is obtained by electrodeposition from a Sn and Sn alloy plating bath, containing (A) a divalent Sn ion with d. of 5-200 g/L, (B) ≥ 1 water-soluble Sn salt, or acid forming a complex with the Sn ion, or complexing agents, (C) ≥ 1 antioxidant with total concentrate of ≥ 1 ppm, (D) ≥ 1 water-soluble C1-6 aliphatic ketone or alc. with d. of 0.5-200 g/L, and (E) ≥ 1 organic additive.

IC ICM H01M004-38

ICS C25D003-32; C25D003-60; C25D005-26; C25D007-00; H01M004-02;
H01M004-04; H01M004-66; H01M004-70; H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy
Technology)

ST secondary **battery** electrode material electrodeposition tin
plating

IT Electrodeposition
(comps. of electroplating solution in deposition of tin or tin alloys on
collectors for secondary **battery** electrodes)

IT Phenolic resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(comps. of electroplating solution in deposition of tin or tin alloys on
collectors for secondary **battery** electrodes)

IT **Battery** electrodes
(comps. of electroplating solns. in deposition of tin or tin alloys on
collectors for secondary **battery** electrodes)

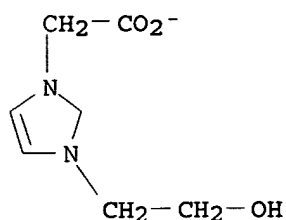
IT 7440-02-0, Nickel, uses 7440-50-8, Copper, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(anode collector; comps. of electroplating solution in deposition of tin
or tin alloys on collectors for secondary **battery** electrodes)

IT 50-00-0, Formalin, uses 50-70-4, Sorbitol, uses 50-81-7, Ascorbic
acid, uses 64-17-5, Ethanol, uses 66-77-3, 1-Naphthaldehyde 67-63-0,
Isopropyl alcohol, uses 67-64-1, Acetone, uses 75-07-0, Acetaldehyde,
uses 80-62-6, Methyl methacrylate 90-02-8D, Salicylaldehyde, reaction
product with hydroxylamine 107-21-1, Ethylene glycol, uses 107-97-1D,
alkyloxy derivs. 110-65-6, 1,4-Butynediol 120-80-9, Catechol, uses
122-57-6, Benzal acetone 123-31-9, Hydroquinone, uses 149-30-4,
2-Mercaptobenzothiazole 149-91-7, 3,4,5-Trihydroxybenzoic acid, uses
527-07-1, Sodium gluconate 1300-53-4, Lead phenolsulfonate 1309-64-4,
Antimony trioxide, uses 1321-67-1D, Naphthol, polyoxyalkylene derivs.
1333-39-7, Phenol sulfonic acid 1561-97-3, 2-Hydroxypropane-1-sulfonic
acid 2386-52-9, Silver methanesulfonate 2809-21-4 5138-18-1,
Sulfosuccinic acid 7320-34-5, Potassium pyrophosphate 7664-93-9,
Sulfuric acid, uses 7681-11-0, Potassium iodide, uses 7718-54-9,
Nickel chloride, uses 7720-78-7, Ferrous sulfate 7758-94-3, Ferrous
chloride 7758-98-7, Copper sulfate, uses 7772-99-8, Stannous chloride,
uses 7803-49-8D, Hydroxylamine, reaction product with salicylaldehyde
9002-92-0, Polyoxyethylene lauryl ether 9003-35-4, Formalin-phenol
copolymer 9016-45-9, Polyethylene glycol nonylphenyl ether 10025-91-9,
Antimony trichloride 10031-62-6, Tin sulfate 10102-45-1, Thallium
nitrate 10124-36-4, Cadmium sulfate 10124-43-3, Cobalt sulfate
13464-58-9, Arsenous acid 18282-10-5, Tin dioxide 21651-19-4, Stannous
oxide 26590-31-8, Cresol sulfonic acid 30938-57-9, Catecholsulfonic
acid 39464-70-5 66027-93-8, Indium sulfamate 84142-18-7
95860-13-2, Tin methanesulfonate 96244-65-4, Tin phenolsulfonate
103427-19-6 114601-58-0 **126235-19-6D**, 2-alkyl derivs.
130920-75-1 130920-76-2 142174-65-0, Emulgen B 66 260803-19-8
528560-56-7
RL: TEM (Technical or engineered material use); USES (Uses)
(comps. of electroplating solution in deposition of tin or tin alloys on
collectors for secondary **battery** electrodes)

IT **126235-19-6D**, 2-alkyl derivs.
RL: TEM (Technical or engineered material use); USES (Uses)
(comps. of electroplating solution in deposition of tin or tin alloys on
collectors for secondary **battery** electrodes)

RN 126235-19-6 HCAPLUS

CN 1H-Imidazolium, 1-(carboxymethyl)-3-(2-hydroxyethyl)-, inner salt (9CI)
(CA INDEX NAME)



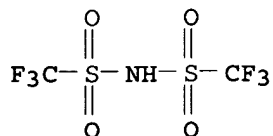
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 31 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2003:136040 HCAPLUS
 DN 138:404097
 TI A sealed optical cell for the study of lithium electrode|electrolyte interfaces
 AU Howlett, P. C.; MacFarlane, D. R.; Hollenkamp, A. F.
 CS Monash University School of Chemistry, Clayton South, 3168, Australia
 SO Journal of Power Sources (2003), 114(2), 277-284
 CODEN: JPSODZ; ISSN: 0378-7753
 PB Elsevier Science B.V.
 DT Journal
 LA English
 AB A sealed, sym., lithium optical cell, which enables optical images of lithium surface deposits and in situ Raman spectra to be obtained simply and conveniently during charge-discharge cycling of lithium metal electrodes, has been designed and tested. A conventional aprotic liquid, 1 M lithium hexafluorophosphate in propylene carbonate, and an exptl. ionic liquid, 20 mol% lithium bis(trifluoromethanesulfonyl)amide in 1-Et 3-Me imidazolium bis(trifluoromethanesulfonyl)amide, are investigated as electrolyte solns. Images obtained from the cell with the former electrolyte solution demonstrate the problems associated with cycling lithium metal electrodes. Images obtained with the latter electrolyte solution provide clear evidence that continued investigation of ionic liqs. for use with lithium metal electrodes is warranted. Operation of the cell with the conventional electrolyte yields Raman spectra of good quality. The spectra display vibrational modes which arise from the electrolyte, as well as several addnl. modes which are associated with the deposits formed during cycling.
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 ST lithium battery electrode electrolyte interfaces
 IT Battery electrodes
 Battery electrolytes
 Interface
 (sealed optical cell for the study of lithium electrode|electrolyte interfaces)
 IT 108-32-7, Propylene carbonate 7439-93-2, Lithium, processes 21324-40-3, Lithium hexafluorophosphate 90076-65-6 528892-06-0
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (sealed optical cell for the study of lithium electrode|electrolyte interfaces)
 IT 528892-06-0
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (sealed optical cell for the study of lithium electrode|electrolyte interfaces)
 RN 528892-06-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, compd. with 1,1,1-trifluoro-N-
[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

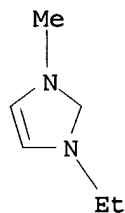
CM 1

CRN 82113-65-3
CMF C2 H F6 N O4 S2



CM 2

CRN 65039-03-4
CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RE.CNT 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 32 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:669423 HCAPLUS

DN 137:219503

TI Electrically conductive adhesion promoters for electrodes

IN Naarmann, Herbert; Kruger, Franz Josef

PA Dilo Trading AG, Switz.

SO Ger. Offen., 4 pp.

CODEN: GWXXBX

DT Patent

LA German

FAN.CNT 1

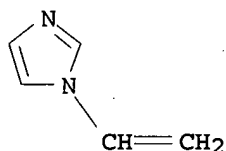
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10107384	A1	20020905	DE 2001-10107384	20010214
PRAI	DE 2001-10107384		20010214		

AB These adhesive promoters are eminently suitable for application in Li ion or Li-polymer **batteries**. Known adhesion promoters show serious disadvantages for the adhesion of active anodes of intercalation carbons and/or of active cathodes of intercalation transition metal oxides to Cu and/or Al current collectors. This special conducting polymer adhesion promoter ensures good adhesion of the current collector to an intercalation electrode, it continues to perform well after many **battery** cycles, and creates good mech. characteristics.

IC ICM H01M004-04
ICS H01M004-62
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST adhesion promoter elec conductive lithium intercalation **battery** electrode
IT Adhesion promoters
Battery electrodes
(elec. conductive adhesion promoters for electrodes)
IT Secondary **batteries**
(lithium; elec. conductive adhesion promoters for electrodes)
IT 9003-39-8, Luviskol K90 **29297-55-0** 51987-20-3, Luvitec VPC
55K65W 455935-19-0, Oppanol B 150G
RL: MOA (Modifier or additive use); USES (Uses)
(elec. conductive adhesion promoters for **electrodes**)
IT **29297-55-0**
RL: MOA (Modifier or additive use); USES (Uses)
(elec. conductive adhesion promoters for **electrodes**)
RN 29297-55-0 HCAPLUS
CN 2-Pyrrolidinone; 1-ethenyl-, polymer with 1-ethenyl-1H-imidazole (9CI)
(CA INDEX NAME)

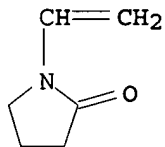
CM 1

CRN 1072-63-5
CMF C5 H6 N2



CM 2

CRN 88-12-0
CMF C6 H9 N O



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 33 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:331948 HCAPLUS
DN 136:328215
TI Method for manufacturing polymer **battery** with conductive polymer electrodes
IN Kurosaki, Masato; Kamisuki, Hiroyuki; Nakagawa, Yuuji; Nishiyama,

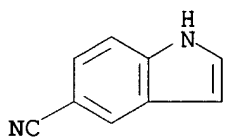
Toshihiko; Harada, Gaku
 PA NEC Corporation, Japan; NEC Tokin Corp.
 SO Eur. Pat. Appl., 16 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1202372	A2	20020502	EP 2001-124795	20011017
	EP 1202372	A3	20040512		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	JP 2002134162	A2	20020510	JP 2000-325406	20001025
	JP 3565777	B2	20040915		
	US 2002073534	A1	20020620	US 2001-983711	20011025
PRAI	JP 2000-325406	A	20001025		
AB	Electroconductive polymers of different kinds are doped with an anion which is the same as that derived from a single acid that occupies the most part of an electrolytic solution of a polymer battery . A cathode and an anode are manufactured from the electroconductive polymers. These electrodes and a protonic acid having a pKa value in a first dissociation stage in water of at least pKa<12 as the single acid that occupies the most part of the electrolytic solution Use of the electrodes and the electrolytic solution of the protonic acid can give rise to a polymer battery that is prevented from deterioration of characteristics of its electrodes with a lapse of time accompanied by repeated charging and discharging and retains high operation voltage as well as improved cycle characteristics and discharge c.d.				
IC	ICM H01M010-40 ICS H01M004-60; H01M004-02				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 38				
ST	battery conductive polymer electrode				
IT	Battery anodes Battery cathodes Conducting polymers Secondary batteries (method for manufacturing polymer battery with conductive polymer electrodes)				
IT	Fluoropolymers, uses RL: DEV (Device component use); USES (Uses) (method for manufacturing polymer battery with conductive polymer electrodes)				
IT	Acids, uses RL: MOA (Modifier or additive use); USES (Uses) (method for manufacturing polymer battery with conductive polymer electrodes)				
IT	Polyquinoxalines RL: DEV (Device component use); USES (Uses) (polyphenylquinoxalines; method for manufacturing polymer battery with conductive polymer electrodes)				
IT	14797-73-0, Perchlorate 14808-79-8, Sulfate, uses 16887-00-6, Chloride, uses RL: MOA (Modifier or additive use); USES (Uses) (dopant; method for manufacturing polymer battery with conductive polymer electrodes)				
IT	9002-84-0, Ptfе 91201-84-2, Poly(5-cyanoindole) RL: DEV (Device component use); USES (Uses)				

(method for manufacturing polymer **battery** with conductive polymer electrodes)
IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(method for manufacturing polymer **battery** with conductive polymer electrodes)
IT 7647-01-0, Hydrochloric acid, reactions 7664-93-9, Sulfuric acid, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(method for manufacturing polymer **battery** with conductive polymer electrodes)
IT 91201-84-2, Poly(5-cyanoindole)
RL: DEV (Device component use); USES (Uses)
(method for manufacturing polymer **battery** with conductive polymer electrodes)
RN 91201-84-2 HCAPLUS
CN 1H-Indole-5-carbonitrile, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 15861-24-2
CMF C9 H6 N2



L40 ANSWER 34 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2002:285182 HCAPLUS
DN 137:223266
TI Redox reactions in some non-chloroaluminate room temperature molten salt systems
AU Katayama, Yasushi; Miura, Takashi
CS Fac. Sci. Technol., Keio Univ., Japan
SO Yoyuen oyobi Koon Kagaku (2002), 45(1), 61-72
CODEN: YKKAEG; ISSN: 0916-1589
PB Denki Kagakkai Yoyuen Iinkai
DT Journal; General Review
LA Japanese
AB A review. Redox reactions in some nonchloroaluminate room temperature molten salt systems were introduced briefly. In 1-ethyl-3-methylimidazolium chloride (EMICl) - iron chlorides (FeCl₂ and/or FeCl₃) molten salt systems, the redox reaction between trivalent and divalent iron species were studied with the aim of constructing a redox **battery** using the molten salt. The reduction of hexafluorosilicate was examined in both (EMI)₂SiF₆ molten salt and EMITFSI molten salt (TFSI = bis(trifluoromethanesulfonyl)imide) containing (EMI)₂SiF₆ with the object of electrodeposition of silicon at low temperature The electrochem. behavior of some transition metals, silver, iron and titanium was studied in EMIBF₄ molten salt. In some TFSI--based molten salt systems, the electrochem. study on silver and ferrocene was described for using Ag/Ag(I) couple as a reference electrode reaction in these systems.
CC 72-0 (Electrochemistry)
Section cross-reference(s): 29, 52, 56, 68, 76

IT **Battery electrolytes**
(ethymethylimidazolium chloride for redox)

IT **174899-82-2**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(Si **electrodeposition** in ethylmethyylimidazolium
hexafluorosilicate melt and ethylmethyylimidazolium
bis(trifluoromethanesulfonyl)imide melt containing ethylmethyylimidazolium
hexafluorosilicate)

IT **390747-25-8**, 1H-Imidazolium, 1-ethyl-3-methyl-,
hexafluorosilicate(2-) (2:1)
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(silicon **electrodeposition** of silicon in
ethylmethyylimidazolium hexafluorosilicate melt)

IT **174899-82-2**
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(Si **electrodeposition** in ethylmethyylimidazolium
hexafluorosilicate melt and ethylmethyylimidazolium
bis(trifluoromethanesulfonyl)imide melt containing ethylmethyylimidazolium
hexafluorosilicate)

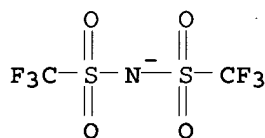
RN 174899-82-2 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with 1,1,1-trifluoro-N-
[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 98837-98-0

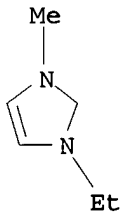
CMF C2 F6 N O4 S2



CM 2

CRN 65039-03-4

CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

IT **390747-25-8**, 1H-Imidazolium, 1-ethyl-3-methyl-,
hexafluorosilicate(2-) (2:1)
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(silicon **electrodeposition** of silicon in
ethylmethyylimidazolium hexafluorosilicate melt)

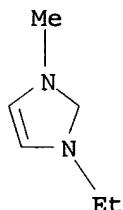
RN 390747-25-8 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, hexafluorosilicate(2-) (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 65039-03-4

CMF C6 H11 N2



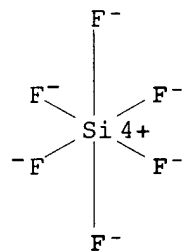
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 17084-08-1

CMF F6 Si

CCI CCS



L40 ANSWER 35 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:231172 HCAPLUS

DN 136:376315

TI Electrodeposited tin coating as negative electrode material for lithium-ion **battery** in room temperature molten salt

AU Fung, Y. S.; Zhu, D. R.

CS Department of Chemistry, The University of Hong Kong, Hong Kong, Peop. Rep. China

SO Journal of the Electrochemical Society (2002), 149(3), A319-A324

CODEN: JESQAN; ISSN: 0013-4651

PB Electrochemical Society

DT Journal

LA English

AB A new room temperature molten salt (RTMS) [1-methyl-3-ethylimidazolium/AlCl₃/SnCl₂ (3:2:0.5)] was developed for depositing tin on a copper electrode. Different tin crystallites were deposited at different temps., giving widely different performances of the assembled lithium cell [Sn (Cu)/LiCl buffered MEICl-AlCl₃ RTMS/lithium]. Tin film deposited at 50° or higher gave a more desirable crystal structure and an improved performance than films obtained at lower temps. Both

cyclic voltammetry and galvanostatic cycling show the formation of three major lithium-tin alloy phases corresponding to the phase transition of $\text{LiSn/Li}_7\text{Sn}_3$, $\text{Li}_{13}\text{Sn}_5/\text{Li}_7\text{Sn}_2$, and $\text{Li}_7\text{Sn}_2/\text{Li}_{22}\text{Sn}_5$. Increases in the charging and discharging capacities were found with the deposition of higher lithium-rich tin alloys, though at the degradation of the irreversible capacity at the first cycle. The discharging capacity decreased rapidly, producing loose, expanded, and irregular crystallites upon cycling at a high c.d. (cd) (1.0 mA/cm^2). However, an average capacity of 140 mAh/g , coulombic efficiency around 85%, and more than 200 cycles were obtained at a low cd (0.4 mA/cm^2). The improvement is attributed to the deposition of small and regular tin crystallites that allows reversible insertion and removal of lithium from a more stable crystal structure without a significant volume change during cycling.

CC 72-8 (**Electrochemistry**)

Section cross-reference(s): 52, 56

ST tin electrodeposit lithium **battery** electrode room temp molten salt

IT **Battery** electrodes

Coating materials

Secondary **batteries**

(electrodeposited tin coating as neg. electrode material for lithium-ion **battery** in room temperature molten salt)

IT Structural phase transition

(formation of lithium-tin alloy phases during elec. charge process in lithium-ion **battery** in room temperature molten salt with tin electrodeposited cathode)

IT Salts, uses

RL: NUU (Other use, unclassified); USES (Uses)

(molten; electrodeposited tin coating as neg. electrode material for lithium-ion **battery** in room temperature molten salt)

IT Electrodeposition

(of tin coating as neg. electrode material for lithium-ion **battery** in room temperature molten salt)

IT Surface structure

(of tin coating as neg. electrode material for lithium-ion **battery** in room temperature molten salt during charge-discharge cycling)

IT 65039-03-4, 1-Methyl-3-ethylimidazolium

RL: NUU (Other use, unclassified); USES (Uses)

(electrodeposited tin coating as neg. **electrode** material for lithium-ion **battery** in room temperature molten salt)

IT 7446-70-0, Aluminum chloride, uses

RL: NUU (Other use, unclassified); USES (Uses)

(electrodeposited tin coating as neg. electrode material for lithium-ion **battery** in room temperature molten salt containing)

IT 51404-25-2, LiSn 53322-71-7 55608-41-8 56627-44-2 67070-82-0

RL: CPS (Chemical process); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); FORM (Formation, nonpreparative); PROC (Process)

(formation during elec. charge process in lithium-ion **battery** in room temperature molten salt with tin electrodeposited cathode)

IT 7772-99-8, Tin dichloride, reactions

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

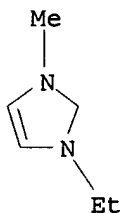
(of tin coating as neg. electrode material for lithium-ion **battery** in room temperature molten salt containing)

IT 65039-03-4, 1-Methyl-3-ethylimidazolium

RL: NUU (Other use, unclassified); USES (Uses)

(electrodeposited tin coating as neg. **electrode** material for lithium-ion **battery** in room temperature molten salt)

RN 65039-03-4 HCAPLUS
 CN 1H-Imidazolium, 1-ethyl-3-methyl- (9CI) (CA INDEX NAME)



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
 RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 36 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2002:193417 HCAPLUS

DN 136:219567

TI Stacked double layer capacitor and **battery**

IN Mitani, Katsuya; Nishiyama, Toshihiko; Kamito, Hiroyuki; Harada, Manabu;
 Nakagawa, Yuji; Yoshida, Shinya; Shinoda, Tomoki; Kurosaki, Masato

PA Nec Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002075788	A2	20020315	JP 2000-267913	20000905
PRAI	JP 2000-267913		20000905		
AB	The capacitor and battery have a stack of electrolyte containing units, having a pair of collectors holding an electrode pair with a separator in between and surrounded by a gasket; where the collectors have different gas permeabilities.				
IC	ICM H01G009-016				
	ICS H01G009-155; H01M004-66; H01M010-04				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
	Section cross-reference(s): 76				
ST	double layer capacitor collector gas permeability; secondary battery electrode collector gas permeability				
IT	Butyl rubber, uses				
	RL: DEV (Device component use); PRP (Properties); USES (Uses) (collectors with different gas permeabilities for stacked secondary batteries and stacked double layer capacitors)				
IT	Secondary batteries (collectors with different gas permeabilities in stacked secondary batteries with gasket surrounded electrode-separator units)				
IT	Permeability (gas; collectors with different gas permeabilities for stacked secondary batteries and stacked double layer capacitors)				
IT	Polyquinoxalines RL: DEV (Device component use); USES (Uses) (polyphenylquinoxalines; anodes in stacked secondary batteries containing gasket surrounded electrode-separator units and collectors of different gas permeabilities)				

IT 9010-85-9
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (butyl rubber, collectors with different gas permeabilities for stacked secondary **batteries** and stacked double layer capacitors)

IT 82451-55-6, Polyindole
 RL: DEV (Device component use); USES (Uses)
 (cathodes in stacked secondary **batteries** containing gasket surrounded **electrode**-separator units and collectors of different gas permeabilities)

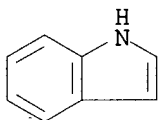
IT 9003-56-9, Abs
 RL: DEV (Device component use); PRP (Properties); USES (Uses)
 (collectors with different gas permeabilities for stacked secondary **batteries** and stacked double layer capacitors)

IT 82451-55-6, Polyindole
 RL: DEV (Device component use); USES (Uses)
 (cathodes in stacked secondary **batteries** containing gasket surrounded **electrode**-separator units and collectors of different gas permeabilities)

RN 82451-55-6 HCAPLUS
 CN 1H-Indole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 120-72-9
 CMF C8 H7 N



L40 ANSWER 37 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2002:193254 HCAPLUS
 DN 136:234657
 TI Manufacture of electrode by heat treatment for secondary polymer **battery**
 IN Harada, Manabu; Nishiyama, Toshihiko; Kamito, Hiroyuki; Kurosaki, Masato; Nakagawa, Yuji; Mitani, Katsuya; Yoshida, Shinya; Shinoda, Tomoki
 PA NEC Corp., Japan; NEC Tokin Corp.
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002075333	A2	20020315	JP 2000-267388	20000904
	JP 3581304	B2	20041027		
PRAI	JP 2000-267388		20000904		

AB The electrode is manufactured by forming a film containing a conductive aid and polymer active mass and then heating at temperature lower than carbonization temperature of the polymer. The electrode may be free from a binder. Claimed **battery** is equipped with the above electrode through a separator impregnated with an electrolyte solution or an electrolyte. The **battery** has high capacity, long cycle life, and low impedance.

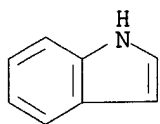
IC ICM H01M004-04

ICS H01M004-60; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST polymer **battery** electrode heat treatment
IT Secondary **batteries**
(lithium; polymer-containing electrode manufactured by heat treatment for secondary polymer **battery**)
IT **Battery** anodes
Battery cathodes
Battery electrodes
Heat treatment
(polymer-containing electrode manufactured by heat treatment for secondary polymer **battery**)
IT Polyquinoxalines
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(polyphenylquinoxalines, anodes; polymer-containing electrode manufactured by heat treatment for secondary polymer **battery**)
IT 52232-62-9
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(anode; polymer-containing electrode manufactured by heat treatment for secondary polymer **battery**)
IT **82451-55-6, Polyindole**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(cathode; polymer-containing **electrode** manufactured by heat treatment for secondary polymer **battery**)
IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(conductive aid; polymer-containing electrode manufactured by heat treatment for secondary polymer **battery**)
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(electrolyte solvent; polymer-containing electrode manufactured by heat treatment for secondary polymer **battery**)
IT 7664-93-9, Sulfuric acid, uses 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte; polymer-containing electrode manufactured by heat treatment for secondary polymer **battery**)
IT **82451-55-6, Polyindole**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(cathode; polymer-containing **electrode** manufactured by heat treatment for secondary polymer **battery**)
RN 82451-55-6 HCAPLUS
CN 1H-Indole, homopolymer (9CI) (CA INDEX NAME)

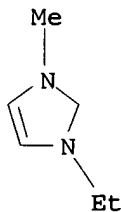
CM 1

CRN 120-72-9

CMF C8 H7 N



L40 ANSWER 38 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:902346 HCAPLUS
DN 136:203011
TI Electrochemical behavior of graphite-lithium intercalation electrode in
AlCl₃-EMIC-LiCl-SOCl₂ room-temperature molten salt
AU Koura, Nobuyuki; Etoh, Keiko; Idemoto, Yasushi; Matsumoto, Futoshi
CS Faculty of Science and Technology, Tokyo University of Science, Chiba,
278-8510, Japan
SO Chemistry Letters (2001), (12), 1320-1321
CODEN: CMLTAG; ISSN: 0366-7022
PB Chemical Society of Japan
DT Journal
LA English
AB The electrochem. behavior of a graphite (comprising only artificial
graphite particles) electrode for intercalation and deintercalation of
Li⁺, in AlCl₃-1-ethyl-3-methylimidazolium chloride (EMIC)-LiCl-thionyl
chloride (SOCl₂) melt was studied.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy
Technology)
ST battery electrode graphite lithium intercalation
IT Battery electrodes
Intercalation
(electrochem. behavior of graphite-lithium intercalation electrode in
AlCl₃-EMIC-LiCl-SOCl₂ room-temperature molten salt)
IT 7439-93-2, Lithium, processes 7446-70-0, Aluminum chloride, processes
7447-41-8, Lithium chloride, processes 7719-09-7, Thionyl chloride
7782-42-5, Graphite, processes 65039-09-0, 1-Ethyl-3-
methylimidazolium chloride
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(electrochem. behavior of graphite-lithium intercalation
electrode in AlCl₃-EMIC-LiCl-SOCl₂ room-temperature molten salt)
IT 65039-09-0, 1-Ethyl-3-methylimidazolium chloride
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(electrochem. behavior of graphite-lithium intercalation
electrode in AlCl₃-EMIC-LiCl-SOCl₂ room-temperature molten salt)
RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 39 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:885606 HCAPLUS
 DN 136:21969
 TI Method of fabrication of an electrode structure for **battery** and
 electrical double-layer capacitor
 IN Sato, Takaya; Shimizu, Tatsuo
 PA Nisshinbo Industries, Inc., Japan; Itochu Corp.
 SO Eur. Pat. Appl., 21 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1160896	A2	20011205	EP 2001-113010	20010528
	EP 1160896	A3	20040407		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001345095	A2	20011214	JP 2000-164947	20000601
	SG 101975	A1	20040227	SG 2001-3148	20010525
	CA 2348858	AA	20011201	CA 2001-2348858	20010529
	CN 1327274	A	20011219	CN 2001-116190	20010530
	TW 510065	B	20021111	TW 2001-90112989	20010530
	US 2002069514	A1	20020613	US 2001-870771	20010601
PRAI	JP 2000-164947	A	20000601		

AB It is an object of the invention to provide an electrode structure composed of a low resistance electrode film with good bonding properties on a current-collecting member surface. Hence, the invention relates to an electrode structure obtainable by coating a compound mixture comprising an electrode material, a binder and a solvent onto a current-collecting member, and by directing a warm breeze onto the compound mixture coating to vaporize the solvent and to form an electrode film on the current-collecting member. Also, a manufacturing method for a **battery** and a double-layer capacitor using such an electrode structure are disclosed.

IC ICM H01M004-04
 ICS H01G009-058

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 76

ST electrode structure **battery** elec double layer capacitor

IT Fluoropolymers, uses

RL: TEM (Technical or engineered material use); USES (Uses)
 (binder; method of fabrication of electrode structure for **battery** and elec. double-layer capacitor)

IT Capacitor electrodes

(double layer; method of fabrication of electrode structure for **battery** and elec. double-layer capacitor)

IT **Battery** electrodes

(method of fabrication of electrode structure for **battery** and elec. double-layer capacitor)

IT Carbon black, uses

RL: MOA (Modifier or additive use); USES (Uses)
 (method of fabrication of electrode structure for **battery** and elec. double-layer capacitor)

IT 7440-44-0, Activated carbon, uses

RL: MOA (Modifier or additive use); USES (Uses)
 (activated; method of fabrication of electrode structure for **battery** and elec. double-layer capacitor)

IT 9002-84-0, Teflon 24937-79-9, PvdF

RL: TEM (Technical or engineered material use); USES (Uses)

(binder; method of fabrication of electrode structure for
battery and elec. double-layer capacitor)

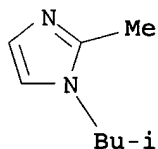
IT 116680-33-2, NC-IM
RL: CAT (Catalyst use); USES (Uses)
(method of fabrication of electrode structure for
battery and elec. double-layer capacitor)

IT 12190-79-3, Cobalt lithium oxide colio2
RL: DEV (Device component use); USES (Uses)
(method of fabrication of electrode structure for battery and
elec. double-layer capacitor)

IT 109-78-4, Ethylene cyanohydrin 110-63-4, 1,4-Butanediol, uses
3290-92-4, Trimethylolpropanetrimethacrylate 9002-89-5D, Polyvinyl
alcohol, cyanoethylated and dihydroxypropylated 9003-11-6, Ethylene
glycol-propylene glycol copolymer 26915-72-0, Methoxypolyethylene glycol
methacrylate
RL: TEM (Technical or engineered material use); USES (Uses)
(method of fabrication of electrode structure for battery and
elec. double-layer capacitor)

IT 116680-33-2, NC-IM
RL: CAT (Catalyst use); USES (Uses)
(method of fabrication of electrode structure for
battery and elec. double-layer capacitor)

RN 116680-33-2 HCAPLUS
CN 1H-Imidazole, 2-methyl-1-(2-methylpropyl)- (9CI) (CA INDEX NAME)



L40 ANSWER 40 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:731243 HCAPLUS
DN 135:291346
TI Secondary lithium batteries
IN Yang, Li; Yoshida, Toshihiro; Nemoto, Hiroshi; Takahashi, Michio
PA NGK Insulators, Ltd., Japan
SO PCT Int. Appl., 67 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001073884	A1	20011004	WO 2001-JP1135	20010216
W: CA, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
JP 2001273927	A2	20011005	JP 2000-89934	20000328
JP 2001283907	A2	20011012	JP 2000-89936	20000328
JP 2001283919	A2	20011012	JP 2000-89965	20000328
JP 2001283920	A2	20011012	JP 2000-89972	20000328
JP 2001283921	A2	20011012	JP 2000-89974	20000328
CA 2374724	AA	20011004	CA 2001-2374724	20010216
EP 1202374	A1	20020502	EP 2001-904518	20010216
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				

	US 2003190530	A1	20031009	US 2001-9216	20011108
PRAI	JP 2000-89934	A	20000328		
	JP 2000-89936	A	20000328		
	JP 2000-89965	A	20000328		
	JP 2000-89972	A	20000328		
	JP 2000-89974	A	20000328		
	WO 2001-JP1135	W	20010216		

AB The **batteries** have a coiled electrode/separator stack and a nonaq. Li salt electrolyte solution, where the cathode, anode, separator, and/or the electrolyte solution contain organic and/or inorg. Cu corrosion inhibitor or Cu trapping agent, a compound containing both basic organic groups and inorg. acid groups, a N-O radical containing cyclic compound, a compound not containing Lewis acid atoms and Lewis base atoms at the same time, a 3-dimensional siloxane compound, and/or a nonionic surfactant, and/or a cyclic Mn²⁺ source in the electrolytes; and the electrolyte soln contains a water trapping agent or a HF trapping agent.

IC ICM H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST secondary lithium **battery** electrode electrolyte separator additive; copper corrosion inhibitor secondary lithium **battery**; trapping agents secondary lithium **batteries**; water trapping agents secondary lithium **batteries**; hydrofluoric acid trapping agents secondary lithium **batteries**

IT Secondary **batteries**
(lithium; additives for electrodes and separators and electrolyte solns. in secondary lithium **batteries**)

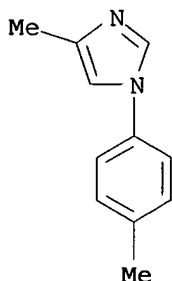
IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 126-73-8, Tributyl phosphate, uses 617-86-7, Triethylsilane 7440-44-0, Carbon, uses 12057-17-9, Lithium manganese oxide (LiMn₂O₄) 21324-40-3, Lithium hexafluorophosphate.
RL: DEV (Device component use); USES (Uses)
(additives for electrodes and separators and electrolyte solns. in secondary lithium **batteries**)

IT 95-14-7, 1,2,3-Benzotriazole 128-94-9, 1,8-Diamino-4,5-dihydroxyanthraquinone 2564-83-2 9004-99-3 9014-92-0, Polyethylene glycol mono-dodecylphenyl ether 14325-24-7, Manganese (II) phthalocyanine 14691-88-4 16011-96-4, 2-Iminopiperidine hydrochloride 26027-38-3, Polyethylene glycol mono-4-nonylphenyl ether 26635-92-7 34272-83-8 207505-82-6 213453-16-8 364589-08-2 364589-09-3
RL: MOA (Modifier or additive use); USES (Uses)
(additives for electrodes and separators and electrolyte solns. in secondary lithium **batteries**)

IT 207505-82-6
RL: MOA (Modifier or additive use); USES (Uses)
(additives for electrodes and separators and electrolyte solns. in secondary lithium **batteries**)

RN 207505-82-6 HCAPLUS

CN 1H-Imidazole, 4-methyl-1-(4-methylphenyl)- (9CI) (CA INDEX NAME)



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 41 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2001:366853 HCAPLUS
DN 134:369396
TI Electrode active mass mixtures for nickel/hydrogen batteries and
manufacture of the electrodes
IN Tang, Xiaohui; Yi, Fan; Li, Yongjun; Fang, Shibi; Wang, Lingzhi; Wu, Feng
PA Institute of Chemistry, Chinese Academy of Sciences, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 17 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
FAN.CNT 1

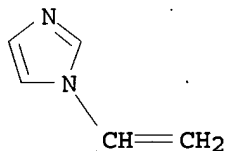
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1277465	A	20001220	CN 1999-108084	19990611
PRAI	CN 1999-108084		19990611		
GI					

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The electrode active mass mixts. contain powdered H absorbing alloy (for anodes) or Ni(OH)₂ (for cathodes) and 1-6% adhesive, which is composed of solid quaternary ammonium salt electrolyte 5-20, (meth)acrylic acid 1-5, (meth)acrylate ester 80-90, self crosslinking monomer 5-15, and divinylbenzene 1-10. The electrolyte is selected from I through IX; the (meth)acrylate ester is selected from Me, Et, Be, and iso-octyl esters; and the self crosslinking agent is from hydroxyethyl acrylate, hydroxypropyl acrylate, divinyl o-phthalate, diallyl o-phthalate, hydroxyethyl methacrylate, and/or 2-hydroxypropyl acrylate. The active mass mixts. are prepared by: reacting polyepichlorohydrin or acrylic acid-methacrylic acid copolymer with organic N compds., and iodizing the reaction product to obtain a solid quaternary ammonium salt electrolyte; copolyng. a mixture containing (meth)acrylic acid 80-90, self crosslinking agent 5-15, and divinylbenzene 1-10% at 75-85° for 3-5 h to obtain an adhesive emulsion; copolyng. a mixture containing acrylic acid 30-50, acrylate ester 40-60, and self crosslinking agent 5-10% at 75-85° for 3-5 h to obtain thickener emulsion; mixing the adhesive emulsion and the thickener emulsion at a 10:2 ratio, and adding the solid electrolyte to the mixture at 5-20% to obtain an adhesive; and mixing the adhesive with electrode active mass at a (1-5):(95-99) ratio.

IC ICM H01M004-62

ICS H01M004-26; H01M004-32; H01M004-36
 CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
 ST nickel hydrogen **battery** electrode adhesive compn manuf
 IT Adhesives
 Battery electrodes
 (compns. and manufacture of adhesives for electrode active mass mixts. for nickel/hydrogen **batteries**)
 IT 1333-74-0, Hydrogen, uses
 RL: DEV (Device component use); USES (Uses)
 (compns. and manufacture of adhesives for electrode active mass mixts. for nickel/hydrogen **batteries**)
 IT 12054-48-7, Nickel hydroxide
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
 (compns. and manufacture of adhesives for electrode active mass mixts. for nickel/hydrogen **batteries**)
 IT **25232-42-2DP**, Me quaternized 62503-58-6P 244307-02-6P
 253871-23-7P 264620-64-6P 340004-16-2P 340004-25-3P 340004-33-3P
 340004-38-8P 340004-40-2P 340004-43-5P 340004-46-8P 340004-48-0P
 340004-51-5P 340004-53-7P 340004-59-3P 340004-62-8P 340004-64-0P
 340004-66-2P 340007-62-7P
 RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PREP (Preparation); USES (Uses)
 (compns. and manufacture of adhesives for **electrode** active mass mixts. for nickel/hydrogen **batteries**)
 IT **25232-42-2DP**, Me quaternized
 RL: IMF (Industrial manufacture); NUU (Other use, unclassified); PREP (Preparation); USES (Uses)
 (compns. and manufacture of adhesives for **electrode** active mass mixts. for nickel/hydrogen **batteries**)
 RN 25232-42-2 HCAPLUS
 CN 1H-Imidazole, 1-ethenyl-, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 1072-63-5
 CMF C5 H6 N2



L40 ANSWER 42 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:299243 HCAPLUS
 DN 134:329044
 TI **Battery** electrode molds, their preparation, and secondary **batteries** using same electrode molds
 IN Fujiwara, Masaki; Nakagawa, Yuji; Kurosaki, Masato; Kaneko, Shinako; Harada, Manabu; Nishiyama, Toshihiko
 PA NEC Corp., Japan; NEC Tokin Corp.
 SO Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF
 DT Patent

LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001118565	A2	20010427	JP 1999-292537	19991014
	JP 3479618	B2	20031215		
	GB 2355579	A1	20010425	GB 2000-25172	20001013
	GB 2355579	B2	20031119		
	US 6830848	B1	20041214	US 2000-689817	20001013
	US 2005001357	A1	20050106	US 2004-902466	20040730
PRAI	JP 1999-292537	A	19991014		
	US 2000-689817	A3	20001013		
AB	Battery electrode molds comprise (A) one sheet of current collectors, and (B) 300 μ m-9 mm thickness of electrode materials containing macromol. active mass, auxiliary elec. conductive agents, and plasticizers, formed at least on one side of the current collectors. Alternatively, multiple sheets of the current collectors (spaced from one another by a prescribed distance) are arranged instead. The volume ratio of the electrode materials and the current collectors may be 30-100:1. The electrode molds are prepared by thermally pressing the elements. Secondary batteries using the electrode molds as anodes and/or cathodes are also claimed. Since the electrode molds are free from binders, the batteries can achieve high adhesion and low elec. resistivity between the current collectors and the electrodes, and high energy d.				
IC	ICM H01M004-02				
	ICS H01M004-04; H01M010-40				
CC	52-2 (Electrochemical , Radiational, and Thermal Energy Technology) Section cross-reference(s): 38				
ST	battery macromol electrode bonding current collector; polymer electrode battery bonding current collector				
IT	Electric conductors (current collectors; secondary batteries using macromol. mold electrodes thermally pressed and bonded with current collectors)				
IT	Sulfonic acids, uses RL: MOA (Modifier or additive use); USES (Uses) (polycyanoindole doped with, electrode active mass; secondary batteries using macromol. mold electrodes thermally pressed and bonded with current collectors)				
IT	Battery electrodes (secondary batteries using macromol. mold electrodes thermally pressed and bonded with current collectors)				
IT	7440-02-0, Nickel, uses 7440-25-7, Tantalum, uses RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (current collectors; secondary batteries using macromol. mold electrodes thermally pressed and bonded with current collectors)				
IT	51109-40-1 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (electrode active mass; secondary batteries using macromol. mold electrodes thermally pressed and bonded with current collectors)				
IT	25233-30-1P, Polyaniline RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PREP (Preparation); PROC (Process); USES (Uses) (p-toluenesulfonate-doped, electrode active mass; secondary batteries using macromol. mold electrodes thermally pressed and bonded with current collectors)				
IT	104-15-4, p-Toluenesulfonic acid, uses				

RL: MOA (Modifier or additive use); USES (Uses)
 (polyaniline doped with, electrode active mass; secondary
batteries using macromol. mold electrodes thermally pressed and
 bonded with current collectors)

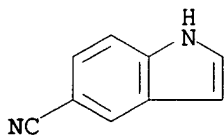
IT 91201-84-2, 5-Cyanoindole homopolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (sulfate-doped, **electrode** active mass; secondary
batteries using macromol. mold **electrodes** thermally
 pressed and bonded with current collectors)

IT 91201-84-2, 5-Cyanoindole homopolymer
 RL: DEV (Device component use); PEP (Physical, engineering or chemical
 process); PROC (Process); USES (Uses)
 (sulfate-doped, **electrode** active mass; secondary
batteries using macromol. mold **electrodes** thermally
 pressed and bonded with current collectors)

RN 91201-84-2 HCAPLUS
 CN 1H-Indole-5-carbonitrile, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 15861-24-2
 CMF C9 H6 N2



L40 ANSWER 43 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:298951 HCAPLUS
 DN 134:298432
 TI Fabrication method for polymer secondary **battery** electrode
 IN Harada, Gaku; Nishiyama, Toshihiko; Fujiwara, Masaki; Kaneko, Shinako;
 Kurosaki, Masato; Nakagawa, Yuuji
 PA NEC Corporation, Japan; NEC Tokin Corporation
 SO Eur. Pat. Appl., 13 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1094531	A2	20010425	EP 2000-122609	20001017
	EP 1094531	A3	20050727		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001118570	A2	20010427	JP 1999-296903	19991019
	US 6641759	B1	20031104	US 2000-668944	20000922
PRAI	JP 1999-296903	A	19991019		

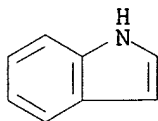
AB Powder of a polymer active material exhibiting an electrochem.
 oxidation-reduction reaction is mixed with powder of a conductivity assisting agent to
 obtain a mixture The mixture is molded by a thermal press into a unitary
 block. Thus, a cell electrode having a large film thickness is produced
 without causing cracks or breakage. The electrode having a large film
 thickness improves the energy d. of the polymer secondary **battery**

IC ICM H01M004-04
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST polymer secondary **battery** electrode fabrication
IT **Battery** anodes
 Battery cathodes
 Pitch
 Secondary **batteries**
 (fabrication method for polymer secondary **battery** electrode)
IT Polyacenes
Polyacetylenes, uses
Polyanilines
RL: DEV (Device component use); USES (Uses)
 (fabrication method for polymer secondary **battery** electrode)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
 (fabrication method for polymer secondary **battery** electrode)
IT Phenolic resins, uses
RL: MOA (Modifier or additive use); USES (Uses)
 (fabrication method for polymer secondary **battery** electrode)
IT Palm (Arecaceae)
 (shells, carbon from; fabrication method for polymer secondary **battery** electrode)
IT Presses
 (thermal; fabrication method for polymer secondary **battery** electrode)
IT 7440-44-0, Carbon, uses
RL: MOA (Modifier or additive use); USES (Uses)
 (epitaxial; fabrication method for polymer secondary **battery** electrode)
IT 25013-01-8, Polypyridine 25067-54-3, Polyfuran 25067-58-7,
Polyacetylene 25067-59-8, Polyvinyl carbazole 25233-30-1, Polyaniline
25233-34-5, Polythiophene 25656-58-0, Triphenylamine homopolymer
30604-81-0, Polypyrrole 31799-17-4, Quinoxaline homopolymer
51109-40-1, Quinoxaline, phenyl-, homopolymer 51325-05-4, Polythienylene
82451-55-6, Polyindole 82451-56-7, Polyazulene 91201-85-3,
Polyisothianaphthene 190201-51-5, Pyrimidine homopolymer 245090-39-5,
9,10-Anthracenedione, diamino-, homopolymer
RL: DEV (Device component use); USES (Uses)
 (fabrication method for polymer secondary **battery** electrode)
IT 1312-43-2, Indium oxide 1332-29-2, Tin oxide 7782-42-5, Graphite, uses
9004-34-6, Cellulose, uses 13007-86-8, C.I. Pigment Black 1
13463-67-7, Titanium oxide, uses 25014-41-9, Polyacrylonitrile
RL: MOA (Modifier or additive use); USES (Uses)
 (fabrication method for polymer secondary **battery** electrode)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium,
uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-50-8,
Copper, uses 7440-57-5, Gold, uses 12597-68-1, Stainless steel, uses
RL: MOA (Modifier or additive use); USES (Uses)
 (powder; fabrication method for polymer secondary **battery** electrode)
IT 82451-55-6, Polyindole
RL: DEV (Device component use); USES (Uses)
 (fabrication method for polymer secondary **battery** electrode)
RN 82451-55-6 HCAPLUS
CN 1H-Indole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 120-72-9

CMF C8 H7 N



L40 ANSWER 44 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2001:241940 HCAPLUS

DN 134:240106

TI Manufacture of high-energy low-consumption long-life environment-protecting lead acid **batteries**

IN Lu, Anmin; Wang, Xiaonan; Lu, Junfeng; Wang, Zheng

PA Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 18 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1263362	A	20000816	CN 1999-102292	19990211
PRAI	CN 1999-102292		19990211		

AB The **batteries** are manufactured by: preparing cathode active mass paste and anode active mass paste, preparing forming soln, forming the electrodes, preparing the **battery** electrolyte, charging the **battery**, and sealing; where the anode paste containing n-C₁₂H₂₅NH₂, 2-benzoimidazolethiol, 3,5-diaminobenzoic acid, nicotinic acid, nicotinic amide, 8-hydroxyquinoline, and/or other metal chelating agent; the cathode active mass paste contains hydroxylamine sulfate, 8-hydroxyquinoline, and/or other metal chelating agent; the formation is carried out in the **battery** case, the forming solution is added in several steps with the solution concentration increases with each step, the initial forming solution contains 6-aminopurine, acetoacetanilide, o-aminobenzoic acid, and 8-hydroxyquinoline-5-sulfonic acid and the solns. added later contain 6-aminopurine, acetoacetanilide, and o-aminobenzoic acid; the electrolyte has a 1st H₂SO₄ solution containing acetanilide, sulfamidine, 8-hydroxyquinoline or its sulfate salt, 2-aminophenol-4-sulfonamide, or sulfamide and a 2nd SiO₄- sol containing tannic acid, benzoic acid or its Na salt, hydroquinone or quinone, Na pyrophosphate, benzeneacetamide, NaOH or KOH, Na₂O₂ or K₂O₂, 8-hydroxyquinoline, or other metal chelating agents.

IC ICM H01M010-12

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

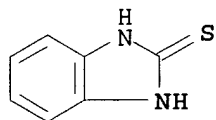
ST lead **battery** manuf electrode electrolyte additiveIT **Battery** electrodes**Battery** electrolytes(additives in electrode active mass pastes and forming solution and electrolytes for manufacture of lead acid **batteries**)

IT Tannins

RL: MOA (Modifier or additive use); USES (Uses)

(additives in electrode active mass pastes and forming solution and

- electrolytes for manufacture of lead acid **batteries**)
- IT **Secondary batteries**
(lead-acid; additives in electrode active mass pastes and forming solution and electrolytes for manufacture of lead acid **batteries**)
- IT 59-67-6, Nicotinic acid, uses 63-74-1, Sulfanilamide 65-85-0, Benzoic acid, uses 73-24-5, 6-Aminopurine, uses 84-88-8, 8-Hydroxyquinoline-5-sulfonic acid 98-32-8, 2-Aminophenol-4-sulfonamide 98-92-0, Nicotinic acid amide 102-01-2, Acetoacetanilide 103-81-1, Benzeneacetamide 103-84-4, Acetanilide 106-51-4, Quinone, uses 118-92-3, o-Aminobenzoic acid 124-22-1, n-Dodecylamine 148-24-3, 8-Hydroxyquinoline, uses 532-32-1, Sodium benzoate 535-87-5, 3,5-Diaminobenzoic acid 583-39-1, 2-Benzimidazolethiol 1310-58-3, Potassium hydroxide, uses 1310-73-2, Sodium hydroxide, uses 1313-60-6, Sodium peroxide 7722-88-5, Sodium pyrophosphate 10193-36-9, Silicic acid 12385-08-9, Dihydroxybenzene 17014-71-0, Potassium peroxide 52409-29-7, Sulfamidine
- RL: MOA (Modifier or additive use); USES (Uses)
(additives in **electrode** active mass pastes and forming solution and electrolytes for manufacture of lead acid **batteries**)
- IT 583-39-1, 2-Benzimidazolethiol
- RL: MOA (Modifier or additive use); USES (Uses)
(additives in **electrode** active mass pastes and forming solution and electrolytes for manufacture of lead acid **batteries**)
- RN 583-39-1 HCAPLUS
- CN 2H-Benzimidazole-2-thione, 1,3-dihydro- (9CI) (CA INDEX NAME)



- L40 ANSWER 45 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
- AN 2001:191458 HCAPLUS
- DN 135:98766
- TI Solid deposits of osmium bis-bipyridyl triazole chloride: Redox properties and electrocrystallization
- AU Forster, Robert J.; Keyes, Tia E.
- CS National Centre for Sensor Research, School of Chemical Sciences, Dublin City University, Dublin, Ire.
- SO Physical Chemistry Chemical Physics (2001), 3(7), 1336-1344
CODEN: PPCPFQ; ISSN: 1463-9076
- PB Royal Society of Chemistry
- DT Journal
- LA English
- AB Mech. attached, solid-state films of [Os(bpy)₂(bpt)Cl] were formed on platinum microelectrodes and their voltammetric properties studied, bpy is 2,2'-bipyridyl and bpt is 3,5-bis(pyridin-4-yl)-1,2,4-triazole. SEM reveals that voltammetric cycling in 1.0M HClO₄ converts the amorphous array of microscopically small particles into a plate-like semi-crystalline form. In contrast, crystallization does not occur when the films are cycled in 1.0M NaClO₄. In both electrolytes, the voltammetric response of these films is reminiscent of that observed for an ideal reversible, solution phase redox couple. Slow and fast scan linear sweep voltammograms were used to provide an absolute determination of the fixed site concentration and apparent diffusion coefficient, D_{app}. The fixed site concentration is 1.65 ± 0.05M for films cycled

in either electrolyte and the Dapp values increase with increasing electrolyte concentration, Celec. These observations suggest that ion transport rather than the rate of electron self-exchange limit the overall rate of charge transport through these solids. In 1.0M NaClO₄, Dapp values for oxidation and reduction are identical at $8.3 \pm 0.5 \times 10^{-12} \text{ cm}^2 \text{ s}^{-1}$. In 1.0M HClO₄, Dapp is significantly lower and depends on whether the deposit is being oxidized ($9.7 \pm 0.4 \times 10^{-13} \text{ cm}^2 \text{ s}^{-1}$) or reduced ($6.3 \pm 0.4 \times 10^{-13} \text{ cm}^2 \text{ s}^{-1}$). These data were used to obtain an insight into the relative importance of intra- vs. inter-particle charge transport. When Celec > 0.5M, the standard heterogeneous electron transfer rate constant, k^0 , becomes independent of the electrolyte concentration with a value of $1.7 \pm 0.2 \times 10^{-5} \text{ cm s}^{-1}$ being observed in both 1.0M NaClO₄ and HClO₄. Significantly, the distance normalized heterogeneous electron transfer rate constant for these solid state films is almost three orders of magnitude smaller than that found within a spontaneously adsorbed monolayer of the same complex. The importance of these results for the rational design of solid-state redox active materials for **battery**, display and sensor applications is considered.

CC 72-2 (**Electrochemistry**)

Section cross-reference(s): 65, 66, 67, 75, 78

IT 215366-93-1

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(cyclic voltammetry of mech. attached solid-state films on platinum **electrodes** in HClO₄ and in NaClO₄ solns.: redox properties and electrocrystn.)

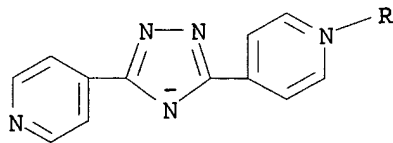
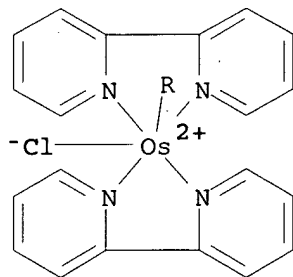
IT 215366-93-1

RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(cyclic voltammetry of mech. attached solid-state films on platinum **electrodes** in HClO₄ and in NaClO₄ solns.: redox properties and electrocrystn.)

RN 215366-93-1 HCAPLUS

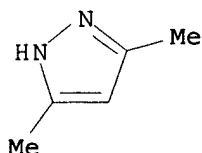
CN Osmium, bis(2,2'-bipyridine-κN1,κN1')chloro[4-[5-(4-pyridinyl)-1H-1,2,4-triazol-3-yl]pyridinato-κN]- (9CI) (CA INDEX NAME)



RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 46 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:418126 HCAPLUS
DN 133:32660
TI Secondary nonaqueous electrolyte **batteries**
IN Uraoka, Yasushi; Hara, Kenji
PA Shin-Kobe Electric Machinery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000173582	A2	20000623	JP 1998-345353	19981204
PRAI	JP 1998-345353		19981204		
AB	The batteries use electrodes having an active mass-binder mixture applied on a collector, where the cathode and/or anode active mass mixture contains a hydrazine compound				
IC	ICM H01M004-02				
	ICS H01M004-62; H01M004-66; H01M010-40				
CC	52-2 (Electrochemical , Radiational, and Thermal Energy Technology)				
ST	battery electrode hydrazine compd additive				
IT	Battery electrodes (electrode active mass mixts. containing hydrazine compds for adhesion on collectors in secondary lithium batteries)				
IT	Carbonaceous materials (technological products) RL: DEV (Device component use); USES (Uses) (electrode active mass mixts. containing hydrazine compds for adhesion on collectors in secondary lithium batteries)				
IT	7429-90-5, Aluminum, uses 7440-50-8, Copper, uses 52627-24-4, Cobalt lithium oxide RL: DEV (Device component use); USES (Uses) (electrode active mass mixts. containing hydrazine compds for adhesion on collectors in secondary lithium batteries)				
IT	67-51-6, 3,5-Dimethylpyrazole 95-14-7, 1H-Benzotriazole 108-26-9 936-02-7 RL: MOA (Modifier or additive use); USES (Uses) (electrode active mass mixts. containing hydrazine compds for adhesion on collectors in secondary lithium batteries)				
IT	67-51-6, 3,5-Dimethylpyrazole RL: MOA (Modifier or additive use); USES (Uses) (electrode active mass mixts. containing hydrazine compds for adhesion on collectors in secondary lithium batteries)				
RN	67-51-6 HCAPLUS				
CN	1H-Pyrazole, 3,5-dimethyl- (9CI) (CA INDEX NAME)				



L40 ANSWER 47 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:313656 HCAPLUS
DN 132:310844

TI Secondary **batteries**

IN Hosokawa, Youichi; Nomura, Yoshihiro; Dodo, Takashi

PA Hitachi Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000133273	A2	20000512	JP 1998-309775	19981030
PRAI	JP 1998-309775		19981030		

AB The **batteries** use a binder containing an epoxy resin, a hardener, an acrylic copolymer, and a hardening accelerator for their cathodes and/or anodes.

IC ICM H01M004-62

ICS H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST **battery** electrode binder epoxy resin acrylic copolymer

IT **Battery** electrodes

Binders

(compns. of electrode binders containing epoxy resin and acrylic copolymer for secondary lithium **batteries**)

IT Acrylic rubber

Fluoropolymers, uses

RL: DEV (Device component use); USES (Uses)

(compns. of electrode binders containing epoxy resin and acrylic copolymer for secondary lithium **batteries**)

IT 7782-42-5, Graphite, uses 12190-79-3, Cobalt lithium oxide (CoLiO₂)

23996-12-5, 2Pz-cn 24937-79-9, Poly(vinylidene fluoride)

25068-38-6 183748-49-4, Escn 001 183748-53-0, Phenolite LF 2882

RL: DEV (Device component use); USES (Uses)

(compns. of **electrode** binders containing epoxy resin and acrylic copolymer for secondary lithium **batteries**)

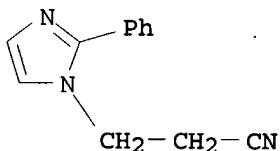
IT 23996-12-5, 2Pz-cn

RL: DEV (Device component use); USES (Uses)

(compns. of **electrode** binders containing epoxy resin and acrylic copolymer for secondary lithium **batteries**)

RN 23996-12-5 HCAPLUS

CN 1H-Imidazole-1-propanenitrile, 2-phenyl- (9CI) (CA INDEX NAME)



L40 ANSWER 48 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2000:298109 HCAPLUS

DN 132:336833

TI Electrochemical intercalation studies of 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate in graphite and graphite-polymer composite electrodes

AU Sutto, Thomas E.; Sienerth, Karl D.; De Long, Hugh C.; Trulove, Paul C.

CS Code 6170, Chemistry Division, NRL, Washington, DC, 20375, USA

SO Proceedings - Electrochemical Society (2000), 99-41(Molten Salts XII),
54-64
CODEN: PESODO; ISSN: 0161-6374

PB Electrochemical Society
DT Journal
LA English

AB A comparative electrochem. study of DMPIBF₄ and EMIBF₄ using both graphite rods and graphite-PVdF-HFP polymer was undertaken to investigate the DIME Battery System, and the relative behavior of the di and tri-substituted imidazolium cations. Both graphite Rod and graphite-polymer composite electrodes indicated that the tri-substituted imidazole DMPI⁺ exhibited much higher efficiencies than EMI⁺, 91% and 78%, resp. In both ionic liqs., the anion charge/discharge efficiencies were significantly lower, reaching a maximum value of 71% in DMPIBF₄. Subsequent anal. on various types of graphite/polymer composite electrodes indicated that electrodes composed of approx. 85% graphite and 15% PVdF-HFP Kynar polymer exhibited enhanced charge/discharge behavior and general stability relative to pure graphite rods.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72

ST **battery** electrochem intercalation imidazolium tetrafluoroborate graphite; polymer graphite composite electrode **battery**

IT **Battery** electrolytes
(dual intercalating molten; electrochem. intercalation studies of 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate in graphite and graphite-polymer composite electrodes)

IT **Battery** electrodes
Secondary **batteries**
(electrochem. intercalation studies of 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate in graphite and graphite-polymer composite electrodes)

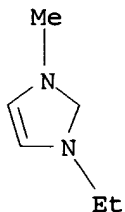
IT 143314-16-3, 1-Ethyl-3-methyl-imidazolium tetrafluoroborate
157310-72-0, 1H-Imidazolium, 1,2-dimethyl-3-propyl-, tetrafluoroborate(1-)
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(electrochem. intercalation studies of 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate in graphite and graphite-polymer composite electrodes)

IT 143314-16-3, 1-Ethyl-3-methyl-imidazolium tetrafluoroborate
157310-72-0, 1H-Imidazolium, 1,2-dimethyl-3-propyl-, tetrafluoroborate(1-)
RL: RCT (Reactant); TEM (Technical or engineered material use); RACT (Reactant or reagent); USES (Uses)
(electrochem. intercalation studies of 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate in graphite and graphite-polymer composite electrodes)

RN 143314-16-3 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 65039-03-4
CMF C6 H11 N2



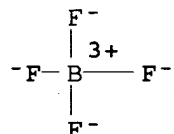
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



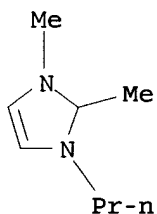
RN 157310-72-0 HCAPLUS

CN 1H-Imidazolium, 1,2-dimethyl-3-propyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 157310-70-8

CMF C8 H15 N2



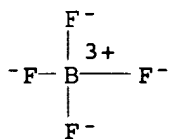
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 49 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:298108 HCAPLUS
DN 132:323876
TI Electrochemical studies of metal dichalcogenide-polymer composite electrodes in 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate
AU Sutto, Thomas E.; Trulove, Paul C.; De Long, Hugh C.
CS Code 6170, Chemistry Division, NRL, Washington, DC, 20375, USA
SO Proceedings - Electrochemical Society (2000), 99-41(Molten Salts XII), 43-53
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB A comparative electrochem. study of DMPiBF₄ and EMiBF₄ using layered metal sulfide- PVdF-HFP polymer composite electrodes was undertaken to investigate their use in place of graphite in the DIME (dual intercalating molten electrolyte) **battery** system. TiS₂ and TaS₂ were chosen since both are known to readily intercalate large heterocyclic compds. MoS₂ was chosen since it is similar in many ways to the other metal sulfides, but it does not lend itself to the intercalation of large guest species. Results indicate that MoS₂ was too difficult to electrochem. intercalate, and exhibited no charge/discharge behavior. TaS₂, on the other hand, underwent spontaneous intercalation, and subsequent exfoliation, resulting in low efficiencies. TiS₂ exhibited a high efficiency for both cation (80%) and, remarkably, anion (65%) intercalation. Time delayed discharging indicated that the BF₄⁻ anion does suffer from chemical degradation within the sulfide layers over time, unlike that observed for BF₄⁻ in graphite.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
ST **battery** electrode metal dichalcogenide polymer composite; imidazolium tetrafluoroborate electrolyte **battery**
IT **Battery** electrodes
(belectrochem. studies of metal dichalcogenide-polymer composite electrodes in 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate)
IT **Battery** electrolytes
(electrochem. studies of metal dichalcogenide-polymer composite electrodes in 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate)
IT 1317-33-5, Molybdenum disulfide, uses 12039-13-3, Titanium disulfide 12143-72-5, Tantalum disulfide 143314-16-3 157310-72-0
RL: DEV (Device component use); USES (Uses)
(electrochem. studies of metal dichalcogenide-polymer composite electrodes in 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate)
IT 143314-16-3 157310-72-0

RL: DEV (Device component use); USES (Uses)

(electrochem. studies of metal dichalcogenide-polymer composite

electrodes in 1,2-dimethyl-3-propyl-imidazolium

tetrafluoroborate and 1-ethyl-3-methyl-imidazolium tetrafluoroborate)

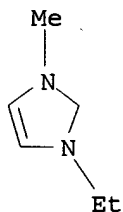
RN 143314-16-3 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 65039-03-4

CMF C6 H11 N2



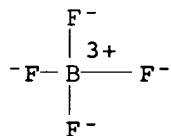
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



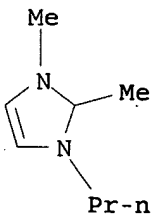
RN 157310-72-0 HCAPLUS

CN 1H-Imidazolium, 1,2-dimethyl-3-propyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 157310-70-8

CMF C8 H15 N2



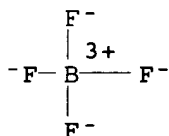
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

- L40 ANSWER 50 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 2000:298107 HCAPLUS
DN 132:336832
TI Ionic liquid, graphite and gel polymer electrolytes and electrodes using 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate
AU Sutto, Thomas E.; De Long, Hugh C.; Trulove, Paul C.
CS Code 6170, Chemistry Division, NRL, Washington, DC, 20375, USA
SO Proceedings - Electrochemical Society (2000), 99-41 (Molten Salts XII), 32-42
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB An electrochem. study of composite gel electrodes and half-cells, of DMPiBF₄, PVdF-HFP Kynar polymer, and graphite was undertaken. Four different graphite-to-DMPiBF₄ ratios were combined with six different graphite-DMPiBF₄-to-polymer ratios. These 24 solid, black rubber-like gels were studied initially as simple electrodes and as half-cells in solid **battery** systems. Initial electrode studies indicated peak charge/discharge efficiencies of over 70% for several combinations. These optimized half cells were used in a solid state **battery** set-up to test their charge-discharge behavior in the absence of an external, supporting electrolyte. From these solid systems, the highest cation charging efficiency of 77% with an anion charging efficiency of 65% were observed for the sample of composition 55.58:27.75:16.67, graphite:DMPiBF₄:polymer.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
ST **battery** gel polymer electrolyte; imidazolium tetrafluoroborate **battery** electrode
IT **Battery** electrodes
Battery electrolytes
(ionic liquid, graphite and gel polymer electrolytes and electrodes using 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate)
IT 7782-42-5, Graphite, uses 157310-72-0
RL: DEV (Device component use); USES (Uses)
(ionic liquid, graphite and gel polymer electrolytes and **electrodes** using 1,2-dimethyl-3-propyl-imidazolium tetrafluoroborate)
IT 157310-72-0

RL: DEV (Device component use); USES (Uses)
(ionic liquid, graphite and gel polymer electrolytes and
electrodes using 1,2-dimethyl-3-propyl-imidazolium
tetrafluoroborate)

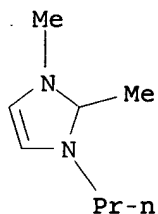
RN 157310-72-0 HCAPLUS

CN 1H-Imidazolium, 1,2-dimethyl-3-propyl-, tetrafluoroborate(1-) (9CI) (CA
INDEX NAME)

CM 1

CRN 157310-70-8

CMF C8 H15 N2



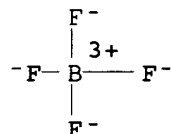
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 14874-70-5

CMF B F4

CCI CCS



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 51 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2000:234493 HCAPLUS

DN 132:267437

TI Room temperature molten salt as medium for lithium **battery** and
alloy electrodeposition - fundamental and application

AU Fung, Y. S.

CS Department of Chemistry, Hong Kong University, Hong Kong, Peop. Rep. China

SO Trends in Inorganic Chemistry (1998), 5, 117-123

CODEN: TIICB

PB Research Trends

DT Journal; General Review

LA English

AB A review, with 58 refs., of the current development and progress of the
room temperature molten salt (RTMS) based on the AlCl3/1-methyl-3-
ethylimidazolium chloride system. Both the fundamental and application
aspects using RTMS as the medium for electrodeposition of metals, alloys
and for high energy secondary lithium **battery** application have

been covered and discussed. A survey on the structure and phys.-chemical parameters of the various molten salt media based on the AlCl₃/MEIC and related systems as revealed by studies using NMR, X-ray, FTIR, electrochem. methods and other techniques is conducted. The effect of the composition and structure of the melt on the solubility of metallic salts, electrochem. nucleation of alloy phases, and chemical interaction occurred at the interface will be reported and discussed. Future areas of development and problems facing the application of RTMS will be assessed and discussed.

CC 52-0 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 72

ST review molten salt medium lithium **battery**

IT **Secondary batteries**
(lithium; room temperature molten salt as medium for lithium **battery** and alloy electrodeposition)

IT Salts, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(molten; room temperature molten salt as medium for lithium **battery** and alloy electrodeposition)

IT **Battery electrolytes**
Electrodeposition
Secondary batteries
(room temperature molten salt as medium for lithium **battery** and alloy electrodeposition)

IT Alloys, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(room temperature molten salt as medium for lithium **battery** and alloy electrodeposition)

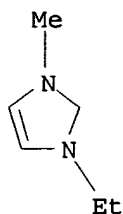
IT Metals, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(room temperature molten salt as medium for lithium **battery** and alloy electrodeposition)

IT 7446-70-0, Aluminum chloride, uses 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(room temperature molten salt as medium for lithium **battery** and alloy electrodeposition)

IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(room temperature molten salt as medium for lithium **battery** and alloy electrodeposition)

RN 65039-09-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
 RE.CNT 58 THERE ARE 58 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 52 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 2000:180091 HCAPLUS

DN 132:210217

TI Secondary lithium ion **batteries** and their manufacture

IN Uraoka, Yasushi; Takatsuka, Yuichi; Hara, Kenji

PA Shin-Kobe Electric Machinery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

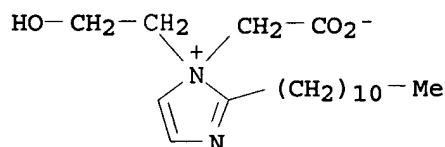
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000082471	A2	20000321	JP 1998-249578	19980903
	JP 3511906	B2	20040329		
PRAI	JP 1998-249578		19980903		
AB	The batteries have Li containing multiple oxide cathode, Li intercalating anodes, and a nonaq. electrolyte layer containing a Li salt; where the cathode active mass layer, anode active mass layer, and/or the electrolyte layer contain an amphoteric surfactant.				
IC	ICM H01M004-62				
	ICS H01M002-16; H01M004-02; H01M004-64; H01M010-40				
CC	52-2 (Electrochemical , Radiational, and Thermal Energy Technology)				
ST	secondary lithium battery amphoteric surfactant additive				
IT	Carbonaceous materials (technological products)				
	RL: DEV (Device component use); USES (Uses)				
	(anodes containing amphoteric surfactants for secondary lithium batteries)				
IT	Secondary batteries				
	(lithium; electrodes and electrolytes containing amphoteric surfactants for secondary lithium batteries)				
IT	12190-79-3, Cobalt lithium oxide (CoLiO ₂)				
	RL: DEV (Device component use); USES (Uses)				
	(cathodes containing amphoteric surfactants in active mass layers for secondary lithium batteries)				
IT	301-02-0, Oleic acid amide 89310-57-6, Lebon 101h 98037-06-0, Lebon 105 100754-07-2, Lebon 2000 260407-92-9, NSA 2000				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(electrodes and electrolytes containing amphoteric surfactants for secondary lithium batteries)				

IT 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 21324-40-3,
Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolytes containing amphoteric surfactants for secondary lithium
batteries)

IT 89310-57-6, Lebon 101h
RL: MOA (Modifier or additive use); USES (Uses)
(**electrodes** and electrolytes containing amphoteric surfactants
for secondary lithium **batteries**)

RN 89310-57-6 HCAPLUS

CN 1H-Imidazolium, 1-(carboxymethyl)-1-(2-hydroxyethyl)-2-undecyl-, inner
salt (9CI) (CA INDEX NAME)



L40 ANSWER 53 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1999:366331 HCAPLUS

DN 131:7488

TI Spinel LiMn2O4 electrode in room temperature molten salt

AU Fung, Ying Sing; Zhou, Ruqi

CS Department of Chemistry, The University of Hong Kong, Hong Kong

SO Electrochemistry (Tokyo) (1999), 67(6), 713-717
CODEN: EECTFA; ISSN: 1344-3542

PB Electrochemical Society of Japan

DT Journal

LA Japanese

AB Room temperature molten salt (RTMS) based on 1-methyl-3-ethylimidazolium chloride/AlCl3/LiAlCl4 is recently shown to provide a promising medium for lithium **battery** due to its high current capability and inertness towards active material. In the present work, the electrochem. properties of a LixMn2O4 electrode in RTMS, the most commonly used pos. electrode material, were investigated by cyclic voltammetry, coulometric titration and constant current cycling. From cyclic voltammetric studies, the LixMn2O4 electrode in RTMS was found to exhibit the same electrochem. behavior as in other nonaq. electrolytes. However, a new and very large irreversible anodic peak was found due to the insertion of AlCl4- into the carbon current collector. During coulometric studies, coulombic efficiencies greater than 96% were obtained at composition close to x = 1 in LixMn2O4. However, for range I (0 < x < 1), a rapid decrease in coulombic efficiency was observed at x less than 0.; for range II (1 < x < 2), close to 86% of the electrode material could be used. Thus, range II was selected for **battery** application. For cycling at range I, greater than 95% cycling efficiencies were obtained up to insertion/extraction capacities of 60 mAh/g, whereas at range II, 98% cycling efficiencies at the first 20 cycles were obtained up to 120 mAh/g. The difference was attributed to the irreversible insertion of AlCl4- anions into the carbon current collector at high anodic potential and hence less lithium was extracted from the LiMn2O4 electrode in 0 < x < 1. The electrochem. performance of the LiMn2O4 electrode as pos. electrode material for secondary lithium **battery** at different lithium insertion in RTMS was discussed in the light of the results obtained.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 72

ST **battery** lithium manganese oxide electrode

IT **Secondary batteries**
(lithium; spinel LiMn₂O₄ electrode in room temperature molten salt)

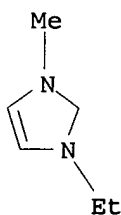
IT **Battery cathodes**
Battery electrolytes
(spinel LiMn₂O₄ electrode in room temperature molten salt)

IT 7440-44-0, Carbon, uses 7446-70-0, Aluminum chloride, uses 12057-17-9, Lithium manganese oxide LiMn₂O₄ 14024-11-4, Lithium tetrachloroaluminate 39457-42-6, Lithium manganese oxide 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: DEV (Device component use); USES (Uses)
(spinel LiMn₂O₄ electrode in room temperature molten salt)

IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: DEV (Device component use); USES (Uses)
(spinel LiMn₂O₄ electrode in room temperature molten salt)

RN 65039-09-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 54 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1998:782101 HCAPLUS

DN 130:27265

TI Electrode compositions suitable for use under large electric current

IN Matsui, Hiroshi; Imai, Takasyuki; Edo, Takashi

PA Fujikura Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10321232	A2	19981204	JP 1997-126093	19970515
PRAI	JP 1997-126093		19970515		

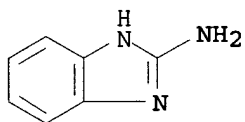
AB The compns. comprise ion-conducting polymers 100, disulfides 50-350, conductive C powder 10-120 parts, and 10-180 parts benzimidazole derivs., benzothiazole derivs., or acridine derivs. The compns. are useful not only for secondary **batteries**, but also for capacitors, electrochromic displays, etc.

IC ICM H01M004-60

ICS H01G009-058; H01G009-025; H01G009-028; H01M004-62; H01M010-40; G02F001-155

CC 52-2 (Electrochemical, Radiational, and Thermal Energy

Technology)
 Section cross-reference(s): 72
 ST ion conducting polymer **battery** electrode; benzimidazole
 disulfide carbon electrode; benzothiazole disulfide carbon electrode;
 acridine disulfide carbon electrode
 IT **Battery** cathodes
 Electrodes
 (electrode compns. comprising polymers, disulfides, conductive C, and
 benzimidazole, benzothiazole, or acridine derivs.)
 IT 90-45-9, 9-Aminoacridine 136-95-8, 2-Aminobenzothiazole 934-32-7
 , 2-Aminobenzimidazole 30555-21-6, Poly(2,5-dimercapto-1,3,4-
 thiadiazole)
 RL: DEV (Device component use); USES (Uses)
 (electrode compns. comprising polymers, disulfides,
 conductive C, and benzimidazole, benzothiazole, or acridine derivs.)
 IT 934-32-7, 2-Aminobenzimidazole
 RL: DEV (Device component use); USES (Uses)
 (electrode compns. comprising polymers, disulfides,
 conductive C, and benzimidazole, benzothiazole, or acridine derivs.)
 RN 934-32-7 HCAPLUS
 CN 1H-Benzimidazol-2-amine (9CI) (CA INDEX NAME)



L40 ANSWER 55 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1998:513308 HCAPLUS
 DN 129:163851
 TI Electrochemical properties of FeS₂ electrode with lithium intercalation in
 room temperature molten salt
 AU You, Jinkua; Lin, Zugeng; Fung, Y. S.; Zhou, Ruqi
 CS State Key Lab. Phys. Chem. Solid Sur., Phys. Chem. Inst. Dep. Chem.,
 Xiamen Univ., Xiamen, 361005, Peop. Rep. China
 SO Xiamen Daxue Xuebao, Ziran Kexueban (1998), 37(3), 401-405
 CODEN: HMHHAF; ISSN: 0438-0479
 PB Xiamen Daxue
 DT Journal
 LA Chinese
 AB FeS₂ electrodes have been prepared by using reactive codeposition methods.
 The electrochem. performances of FeS₂ were studied in LiCl buffer Lewis
 neutral 1-methyl-3-ethylimidazolium chloride/AlCl₃ (room temperature molten
 salt) melts. The results show that FeS₂ electrodes possess reversible Li
 ion intercalation and deintercalation behavior in the first step to
 electron processes.
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy
 Technology)
 ST lithium **battery** cathode iron sulfide
 IT **Battery** cathodes
 (electrochem. properties of FeS₂ electrode with lithium intercalation
 in room temperature molten salt)
 IT Secondary **batteries**
 (lithium; electrochem. properties of FeS₂ electrode with lithium
 intercalation in room temperature molten salt)
 IT 7446-70-0, Aluminum chloride, uses 65039-09-0,

1-Methyl-3-ethylimidazolium chloride

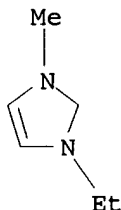
RL: TEM (Technical or engineered material use); USES (Uses)
(electrochem. properties of FeS₂ electrode with lithium
intercalation in room temperature molten salt)

IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride

RL: TEM (Technical or engineered material use); USES (Uses)
(electrochem. properties of FeS₂ electrode with lithium
intercalation in room temperature molten salt)

RN 65039-09-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 56 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1997:396793 HCAPLUS

DN 127:83852

TI Li-Al negative electrode characteristics for the rocking chair type
lithium secondary **battery** with a nonflammable ambient
temperature molten salt electrolyte

AU Koura, Nobuyuki; Ui, Koichi

CS Fac. Sci. Technol., Tokyo Univ. Sci., Noda, Japan

SO Keikinzoku (1997), 47(5), 267-272

CODEN: KEIKA6; ISSN: 0451-5994

PB Keikinzoku Gakkai

DT Journal

LA Japanese

AB The rocking chair type lithium secondary **battery** using an LiCl
saturated AlCl₃-1-ethyl-3-methylimidazolium chloride (EMIC) melt as a
nonflammable electrolyte operated at room temps. has been developed. LiCl
was soluble in the acidic melts (50 mol% < AlCl₃). Li metal was added to the
melt in order to reduce Al₂Cl₇⁻ remained in the melt to Al and AlCl₄⁻. As
a result, the potential window of the melt became about 4.4 V between the
reduction potential of EMI⁺ and the oxidation potential of AlCl₄⁻. Lithium was
only deposited on an Al electrode from this melt. Cyclic voltammograms
for an Al electrode in the melt showed reversible depositing and resolving
behavior for lithium. From x-ray diffraction anal., it was confirmed that
Li-Al alloy was formed on the Al substrate at room temperature
Chronopotentiograms for an Li_xAl electrode in the melt showed ca. 280
Ah/kg of discharge capacity at the potential plateau range about -1.5 V
vs. Al.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy
Technology)

ST lithium aluminum alloy anode **battery**; electrolyte

ethylmethylimidazolium chloride aluminum chloride **battery**

IT **Battery** anodes

(Li-Al neg. electrode characteristics for the rocking chair type lithium secondary **battery** with a nonflammable ambient temperature molten salt electrolyte)

IT **Battery electrolytes**
(LiCl saturated AlCl₃-1-ethyl-3-methylimidazolium chloride; Li-Al neg. electrode characteristics for the rocking chair type lithium secondary **battery** with a nonflammable ambient temperature molten salt electrolyte)

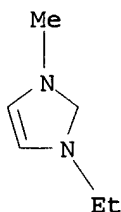
IT **Secondary batteries**
(lithium; Li-Al neg. electrode characteristics for the rocking chair type lithium secondary **battery** with a nonflammable ambient temperature molten salt electrolyte)

IT 12798-95-7
RL: DEV (Device component use); USES (Uses)
(Li-Al neg. electrode characteristics for the rocking chair type lithium secondary **battery** with a nonflammable ambient temperature molten salt electrolyte)

IT 7446-70-0, Aluminum chloride, uses 7447-41-8, Lithium chloride, uses 65039-09-0, 1-Ethyl-3-methylimidazolium chloride
RL: DEV (Device component use); USES (Uses)
(electrolyte; Li-Al neg. **electrode** characteristics for the rocking chair type lithium secondary **battery** with a nonflammable ambient temperature molten salt electrolyte)

IT 65039-09-0, 1-Ethyl-3-methylimidazolium chloride
RL: DEV (Device component use); USES (Uses)
(electrolyte; Li-Al neg. **electrode** characteristics for the rocking chair type lithium secondary **battery** with a nonflammable ambient temperature molten salt electrolyte)

RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 57 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1996:727928 HCAPLUS
DN 126:123901
TI Electrochemistry of room-temperature chloroaluminate molten salts at graphitic and nongraphitic electrodes
AU Carlin, R. T.; Fuller, J.; Kuhn, W. K.; Lysaght, M. J.; Trulove, P. C.
CS The Frank J. Seiler Research Lab., United States Air Force Academy, Colorado, 80840-6272, USA
SO Journal of Applied Electrochemistry (1996), 26(11), 1147-1160
CODEN: JAELEBJ; ISSN: 0021-891X
PB Chapman & Hall
DT Journal

LA English

AB The electrochem. of unbuffered and buffered neutral AlCl_3 -EMIC-MCl (EMIC = 1-ethyl-3-methylimidazolium chloride and MCl = LiCl, NaCl or KCl) room-temperature molten salts was studied at graphitic and nongraphitic electrodes. In the case of the unbuffered 1:1 AlCl_3 /EMIC molten salt, the organic cation reductive intercalation at about -1.6 V and the AlCl_4^- anion oxidative intercalation at about +1.8 V were evaluated at porous graphite electrodes. It was determined that the instability of the organic cation in the graphite lattice limits the performance of a dual intercalating molten electrolyte (DIME) cell based on this electrolyte. In buffered neutral 1.1:1.0:0.1 AlCl_3 /EMIC/MCl molten salts, the organic cation was intercalated into porous and nonporous graphite electrodes with similar cycling efficiencies as the unbuffered 1:1 melt; however, addnl. nonintercalating processes also occurred between -1 and -1.6 V in the LiCl and NaCl systems. A black electrodeposit, formed at -1.4 V in the LiCl buffered neutral melt, was analyzed with XPS and x-ray diffraction and was found to be composed of LiCl, metallic phases containing Li and Al, and an alumina phase formed from reaction with the atmospheric O_2 . A similar film appears to form in the NaCl buffered neutral melt, but at a much slower rate. These films are believed to form by reduction of the AlCl_4^- anion, a process promoted by decreasing the ionic radius of the alkali metal cation in the molten salt. The partially insulating films may limit the usefulness of the LiCl and NaCl buffered neutral melts as electrolytes for rechargeable graphite intercalation anodes and may interfere with other electrochem. processes occurring neg. of -1 V.

CC 72-5 (Electrochemistry)

Section cross-reference(s): 52

IT Secondary batteries

(electrochem. of room-temperature AlCl_3 -ethylmethylimidazolium-alkali metal chloride molten salts for)

IT 7447-40-7, Potassium chloride, uses 7447-41-8, Lithium chloride, uses 7647-14-5, Sodium chloride (NaCl), uses 65039-09-0, 1-Ethyl-3-methylimidazolium chloride

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(electrochem. of room-temperature AlCl_3 -ethylmethylimidazolium-alkali metal chloride molten salts at graphitic and nongraphitic electrodes)

IT 65039-03-4, 1-Ethyl-3-methylimidazolium

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)

(reductive intercalation of ethylmethylimidazolium cation in room-temperature chloroaluminate molten salts at graphitic and nongraphitic electrodes)

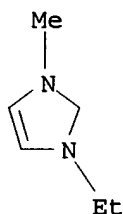
IT 65039-09-0, 1-Ethyl-3-methylimidazolium chloride

RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(electrochem. of room-temperature AlCl_3 -ethylmethylimidazolium-alkali metal chloride molten salts at graphitic and nongraphitic electrodes)

RN 65039-09-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

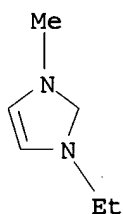
IT 65039-03-4, 1-Ethyl-3-methylimidazolium

RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)

(reductive intercalation of ethylmethylimidazolium cation in room-temperature chloroaluminate molten salts at graphitic and nongraphitic electrodes)

RN 65039-03-4 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl- (9CI) (CA INDEX NAME)



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 58 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1996:215372 HCAPLUS

DN 124:273094

TI Electrodeposition and stripping of lithium and sodium on inert electrodes in room temperature chloroaluminate molten salts

AU Piersma, Bernard J.; Ryan, David M.; Schumacher, Eric R.; Riechel, Thomas L.

CS Dep. Chem., Houghton College, Houghton, NY, 14744, USA

SO Journal of the Electrochemical Society (1996), 143(3), 908-13

CODEN: JESOAN; ISSN: 0013-4651

PB Electrochemical Society

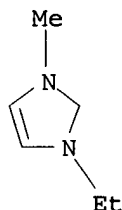
DT Journal

LA English

AB The demonstration of a stable, reversible alkali metal anode is an important step in the development of practical secondary batteries using room temperature chloroaluminate molten salts as electrolytes. Such melts are made by mixing 1-ethyl-3-methylimidazolium chloride (EMICl) with aluminum chloride, and can be Lewis buffered by adding LiCl or NaCl. It was shown previously that protons added to a sodium chloride buffered melt as 1-ethyl-3-methylimidazolium hydrogen dichloride (EMIHCl₂) provide a more neg. voltage window and nearly reversible deposition-stripping behavior for sodium. While EMIHCl₂ is a proven proton source and also enhances lithium deposition and stripping, its stability in the melt is

limited by the rapid loss of HCl(g). The authors report here that triethanolamine·hydrochloride is effective in widening the voltage window, allows the plating and stripping of both lithium and sodium, and is stable in buffered EMICl/AlCl₃ melts for months. A study of various potential proton donors suggests that deprotonation of one EtOH group of triethanolamine·HCl is responsible for the effect. A few other reagents also give this effect, but react more slowly or are more difficult to handle. Plated sodium appears to be more stable in this melt system than lithium.

CC 72-8 (Electrochemistry)
 Section cross-reference(s): 52, 68
 IT Anodes
 (battery, lithium and zinc electrodeposition for)
 IT 65039-09-0, 1-Ethyl-3-methylimidazolium chloride
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
 (electrodeposition and stripping of lithium and sodium on
 inert electrodes in room temperature LiCl or NaCl buffered AlCl₃
 melt with)
 IT 65039-09-0, 1-Ethyl-3-methylimidazolium chloride
 RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
 (electrodeposition and stripping of lithium and sodium on
 inert electrodes in room temperature LiCl or NaCl buffered AlCl₃
 melt with)
 RN 65039-09-0 HCAPLUS
 CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 59 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1996:73327 HCAPLUS
 DN 124:92699
 TI Manufacture of a polypyrrole positive electrode (cathode) for secondary
 batteries comprising an aluminum chloride-containing molten salt
 as electrolyte and an aluminum anode
 IN Bjerrum, Niels J.; Petrushina, Irina M.; Vestergaard, Bo; Hjuler, Hans
 Aage; Berg, Rolf W.
 PA Den.
 SO Dan., 15 pp.
 CODEN: DAXXAF
 DT Patent
 LA Danish
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	DK 170626	B1	19951113	DK 1993-1045	19930920

DK 9301045 A 19950321
PRAI DK 1993-1045 19930920

AB The polypyrrole electrodes are electrochem. activated by pretreatment (doping) in an AlCl₃-containing molten salt electrolyte. Addnl., the pretreatment electrolyte contains 1-methyl-3-ethyl-imidazolium chloride (or derivs. thereof) and/or 1,4-dimethyl-1,2,4-triazolium chloride (or derivs. thereof). The **batteries** may be operated at room temperature or higher temperature, and permits more recharge cycles. A mixture of polypyrrole powder 77, Teflon powder 12, and carbon black powder 11 weight% (as a suspension of Teflon and carbon black powder in Me₂CO) was spread on a Pt foil. The coated foil was pretreated in a molten mixture of 1-methyl-3-ethyl-imidazolium chloride and AlCl₃.

IC ICM H01M004-60
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST polypyrrole pos electrode secondary **battery**; Teflon carbon black polypyrrole electrode; methylethylimidazolium chloride electrode; dimethyltriazolium chloride electrode

IT Carbon black, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with Teflon and polypyrrole; pretreatment of polypyrrole-based pos. electrodes for improved performance in secondary **batteries** comprising an aluminum chloride-containing molten salt as electrolyte)

IT **Batteries**, secondary
Cathodes
(pretreatment of polypyrrole-based pos. electrodes for improved performance in secondary **batteries** comprising an aluminum chloride-containing molten salt as electrolyte)

IT 9002-84-0, Teflon
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with carbon black and polypyrrole; pretreatment of polypyrrole-based pos. electrodes for improved performance in secondary **batteries** comprising an aluminum chloride-containing molten salt as electrolyte)

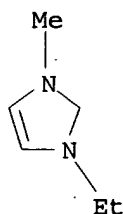
IT 65039-09-0, 1-Methyl-3-ethyl-imidazolium chloride 136152-27-7
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with molten aluminum chloride; pretreatment of polypyrrole-based pos. **electrodes** for improved performance in secondary **batteries** comprising an aluminum chloride-containing molten salt as electrolyte)

IT 7446-70-0, Aluminum chloride, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; pretreatment of polypyrrole-based pos. electrodes for improved performance in secondary **batteries** comprising an aluminum chloride-containing molten salt as electrolyte)

IT 30604-81-0, Polypyrrole
RL: TEM (Technical or engineered material use); USES (Uses)
(pretreatment of polypyrrole-based pos. electrodes for improved performance in secondary **batteries** comprising an aluminum chloride-containing molten salt as electrolyte)

IT 65039-09-0, 1-Methyl-3-ethyl-imidazolium chloride
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with molten aluminum chloride; pretreatment of polypyrrole-based pos. **electrodes** for improved performance in secondary **batteries** comprising an aluminum chloride-containing molten salt as electrolyte)

RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)

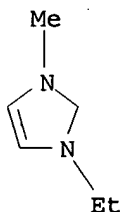


● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 60 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1995:930588 HCAPLUS
 DN 123:345624
 TI Stability of sodium electrodeposited from a room temperature
 chloroaluminate molten salt
 AU Gray, Gary E.; Kohl, Paul A.; Winnick, Jack
 CS Sch. Chem. Eng., Georgia Inst. Technol., Atlanta, GA, 30332-0100, USA
 SO Journal of the Electrochemical Society (1995), 142(11), 3636-42
 CODEN: JESOAN; ISSN: 0013-4651
 PB Electrochemical Society
 DT Journal
 LA English
 AB Room temperature molten salts consisting of 1-methyl-3-ethylimidazolium chloride
 (MEIC) and AlCl₃ have been examined as possible electrolytes for a room
 temperature design of the sodium/iron(II) chloride **battery**. This work
 exams. the conditions required to achieve efficient reduction and oxidation of
 sodium from a sodium chloride buffered, neutral melt. Two substrates were
 examined, tungsten and 303 stainless steel, using both cyclic voltammetry
 and chronopotentiometry. Melts were protonated using a closed
 electrochem. cell to allow quantification of the effect of dissolved HCl
 on the efficiency of the sodium couple. A threshold of approx. 6 Torr HCl
 partial pressure was observed for sodium plating-stripping. Below this
 threshold, the sodium couple was not observed. The results show that the
 sodium plating-stripping efficiency increases with increasing c.d.;
 however, the efficiency reaches a maximum passivation occurs as even a very
 thin layer of plated sodium exhibits a steady open-circuit voltage over
 long periods in the melt.
 CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy
 Technology)
 Section cross-reference(s): 72
 ST sodium electrodeposit stability iron chloride **battery**
 IT **Battery** electrolytes
 (1-methyl-3-ethylimidazolium chloride/AlCl₃; stability of sodium
 electrodeposited from a room temperature chloroaluminate molten salt for
 sodium/iron(II) chloride **battery**)
 IT **Batteries**, secondary
 (sodium/iron(II) chloride; stability of sodium electrodeposited from a
 room temperature chloroaluminate molten salt for)
 IT 7446-70-0, Aluminum chloride, uses 65039-09-0,
 1-Methyl-3-ethylimidazolium chloride
 RL: DEV (Device component use); USES (Uses)
 (stability of sodium **electrodeposited** from a room temperature
 chloroaluminate molten salt for sodium/iron(II) chloride

IT battery)
7440-33-7, Tungsten, uses 12725-27-8
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; stability of sodium electrodeposited from a room temperature
chloroaluminate molten salt for sodium/iron(II) chloride
battery)
IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: DEV (Device component use); USES (Uses)
(stability of sodium electrodeposited from a room temperature
chloroaluminate molten salt for sodium/iron(II) chloride
battery)
RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 61 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1995:769342 HCAPLUS
DN 123:211253
TI Iridium oxide electrode in water, organic solvents and in room-temperature
molten salts
AU Elzanowska, H.; Birss, V. I.
CS Dep. Chem., Univ. Calgary, Alberta, QC, T2N 1N4, Can.
SO Polish Journal of Chemistry (1995), 69(5), 774-86
CODEN: PJCHDQ; ISSN: 0137-5083
PB Polish Chemical Society
DT Journal
LA English
AB The kinetics of oxidation and reduction of electrochem. formed Ir oxide films was
studied in organic solvents and in room-temperature molten salts from the viewpoint
of application of the Ir oxide electrode as a cathode in advanced
rechargeable **batteries**. A stable and fast kinetic response of
this electrode can be obtained in MeOH, MeCN and DMF solns., provided the
oxide is kept in its unaged form before the transfer to the organic solution,
and the resolution of the Ir oxide film is facilitated either by
prolonged cycling in the organic solution or by lowering the water content of
the solution and the oxide. In room-temperature molten salts, the Ir oxide is
inactive, unless an organic solvent (MeCN) is added. The results are
discussed in terms of the limitation of the kinetics of the Ir oxide redox
process by a diffusion of electrons through the oxide film and the need of
small ions to balance the charge within the oxide film.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 52, 67
ST advanced rechargeable **battery** iridium oxide; electrode iridium
oxide water org solvent; acetonitrile iridium oxide electrode redox

reaction; methanol iridium oxide electrode redox reaction; DMF iridium oxide electrode redox reaction; aluminum salt effect iridium oxide electrode

IT 1467-16-9, Imidazolium chloride

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(kinetics of redox reaction of iridium oxide electrode in room-temperature molten AlCl₃ with imidazolium chloride in presence of acetonitrile)

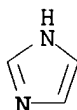
IT 1467-16-9, Imidazolium chloride

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(kinetics of redox reaction of iridium oxide electrode in room-temperature molten AlCl₃ with imidazolium chloride in presence of acetonitrile)

RN 1467-16-9 HCAPLUS

CN 1H-Imidazole, monohydrochloride (9CI) (CA INDEX NAME)



● HCl

L40 ANSWER 62 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1995:277293 HCAPLUS

DN 122:66708

TI Nonaqueous aluminum electrolytic solutions, **batteries** using the solutions, and electrodeposition of aluminum

IN Noda, Kazuhiro; Takahashi, Kenichi; Tanaka, Koichi; Watanabe, Haruo; Hikuma, Koichiro

PA Sony Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

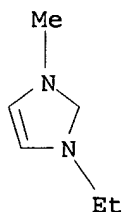
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06293991	A2	19941021	JP 1993-222083	19930812
	JP 3324101	B2	20020917		
	US 6083647	A	20000704	US 1993-103792	19930810
	US 6558838	B1	20030506	US 2000-502327	20000211
PRAI	JP 1992-239041	A	19920814		
	JP 1993-45842	A	19930209		
	US 1993-103792	A1	19930810		

AB The nonaq. electrolytic solution contains an Al halide (AlX₃ where X = Cl, Br, and I) and an organic halide (such as quaternary ammonium salt or quaternary phosphonium salt). The **battery** contains an Al or Al alloy anode and a cathode and the nonaq. electrolytic solution Al is electrodeposited from the nonaq. electrolytic solution The polarization is reduced in the discharge of a **battery** containing an Al or Al alloy anode and the nonaq. electrolytic solution

IC ICM C25D003-66

ICS H01M010-40
CC 72-8 (**Electrochemistry**)
Section cross-reference(s): 52
ST nonaq aluminum electrolytic soln **battery**; electrode aluminum alloy nonaq electrolyte **battery**; electrodeposition aluminum nonaq electrolytic bath; org halide aluminum electrodeposition nonaq bath
IT **Battery** electrolytes
(nonaq. electrolytes comprising aluminum halides and organic halides for)
IT **Batteries**, secondary
(nonaq. electrolytic solns. for)
IT Phosphonium compounds
Quaternary ammonium compounds, uses
RL: NUU (Other use, unclassified); USES (Uses)
(chlorides, in manufacture of nonaq. aluminum electrolytic solns. for **batteries** and electrodeposition of aluminum)
IT 56-34-8, Tetraethylammonium chloride 56-37-1, Triethylbenzylammonium chloride 56-93-9, Trimethylbenzylammonium chloride 75-05-8, Acetonitrile, uses 75-57-0, Tetramethylammonium chloride 95-50-1, 1,2-Dichlorobenzene 107-06-2, 1,2-Dichloroethane, uses 108-32-7 138-24-9, Trimethylphenylammonium chloride 367-11-3, 1,2-Difluorobenzene 616-38-6, Dimethyl carbonate 896-33-3, Triphenylethylphosphonium chloride 1124-64-7 2001-45-8, Tetraphenylphosphonium chloride 7368-65-2, Tetraethylphosphonium chloride 7430-15-1, Triethylphenylammonium chloride 7446-70-0, Aluminum chloride (AlCl₃), uses 10052-47-8, Triethylmethylammonium chloride 27697-51-4, Trimethylethylammonium chloride 30417-67-5, Trimethylbenzylphosphonium chloride 65039-09-0, 1-Ethyl-3-methylimidazolium chloride 160072-87-7
RL: NUU (Other use, unclassified); USES (Uses)
(in manufacture of nonaq. aluminum electrolytic solns. for **batteries** and **electrodeposition** of aluminum)
IT 65039-09-0, 1-Ethyl-3-methylimidazolium chloride
RL: NUU (Other use, unclassified); USES (Uses)
(in manufacture of nonaq. aluminum electrolytic solns. for **batteries** and **electrodeposition** of aluminum)
RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

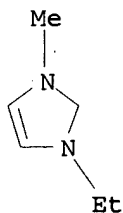
L40 ANSWER 63 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1993:128256 HCAPLUS

DN 118:128256

TI Characterization of metal chloride porous electrodes in a low-temperature molten salt

AU Mancini, Sarah Elizabeth
 CS Univ. Michigan, Ann Arbor, MI, USA
 SO (1991) 335 pp. Avail.: Univ. Microfilms Int., Order No. DA9135645
 From: Diss. Abstr. Int. B 1992, 52(7), 3760-61
 DT Dissertation
 LA English
 AB Unavailable
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy
 Technology)
 Section cross-reference(s): 72
 ST molten salt electrolyte **battery**; methylethylimidazolium chloride
 aluminum chloride electrolyte; iron chloride porous electrode
battery
 IT **Battery** electrolytes
 (aluminum chloride-methylethylimidazolium chloride, molten,
 characterization of porous iron chloride electrodes in)
 IT Electrodes
 (**battery**, iron chloride, characterization of porous, in
 low-temperature molten salt)
 IT 12040-57-2, Iron chloride
 RL: USES (Uses)
 (electrodes, characterization of porous, in low-temperature molten salt, for
batteries)
 IT 132086-91-0
 RL: USES (Uses)
 (electrolyte, molten, characterization of porous iron chloride
electrodes in, for **batteries**)
 IT 132086-91-0
 RL: USES (Uses)
 (electrolyte, molten, characterization of porous iron chloride
electrodes in, for **batteries**)
 RN 132086-91-0 HCAPLUS
 CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride, mixt. with aluminum chloride
 (AlCl₃) (9CI) (CA INDEX NAME)
 CM 1
 CRN 65039-09-0
 CMF C6 H11 N2 . Cl



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 7446-70-0

CMF Al Cl3

Cl
|
Cl-Al-Cl

L40 ANSWER 64 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1992:493801 HCAPLUS

DN 117:93801

TI Secondary **batteries** with polymer electrodes

IN Yoshinaga, Noryuki; Fujimoto, Masahisa; Furukawa, Sanehiro

PA Sanyo Denki K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04104477	A2	19920406	JP 1990-222005	19900822
	JP 3108082	B2	20001113		
PRAI	JP 1990-222005		19900822		

AB In **batteries** use conducting polymer anodes and/or cathodes and N-containing compds. as electrolyte solvents. The compds. are selected from pyrrolidone, pyrrolidine, pyrroline, pyrazole, pyrazolidine, imidazole, triazole, tetrazole, and their derivs. There **batteries** have high capacity d.

IC ICM H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST polymer **battery** electrolyte solvent; nitrogen compd solvent **battery** electrolyteIT **Battery** electrolytes

(lithium salts, nitrogen-containing compds. as solvents for)

IT **Batteries**, secondary

(polymer, nitrogen-containing compds. as solvents for)

IT 25233-30-1, Polyaniline 25233-34-5, Polythiophene 30604-81-0, Polypyrrole

RL: USES (Uses)

(electrodes, **batteries** with, nitrogen-containing compds. as electrolyte solvents for)

IT 123-75-1, Pyrrolidine, uses 288-13-1, Pyrazole 288-32-4

, Imidazole, uses 288-94-8, 1H-Tetrazole 504-70-1, Pyrazolidine

616-45-5, Pyrrolidone 638-31-3, 2-Pyrroline 872-50-4,

N-Methyl-2-pyrrolidone, uses 28350-87-0, Pyrroline 37306-44-8,

Triazole

RL: USES (Uses)

(electrolyte solvent, for **batteries** with polymer **electrodes**)

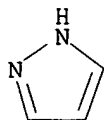
IT 288-13-1, Pyrazole 288-32-4, Imidazole, uses

RL: USES (Uses)

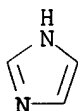
(electrolyte solvent, for **batteries** with polymer **electrodes**)

RN 288-13-1 HCAPLUS

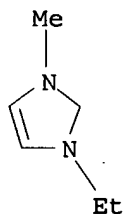
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



RN 288-32-4 HCAPLUS
CN 1H-Imidazole (9CI) (CA INDEX NAME)



L40 ANSWER 65 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1992:223653 HCAPLUS
DN 116:223653
TI Reversible plating and stripping of sodium at inert electrodes in room temperature chloroaluminate molten salts
AU Riechel, Thomas L.; Wilkes, John S.
CS Frank J. Seiler Res. Lab., U.S. Air Force Acad., CO, 80840-6528, USA
SO Journal of the Electrochemical Society (1992), 139(4), 977-81
CODEN: JESOAN; ISSN: 0013-4651
DT Journal
LA English
AB Sodium has been suggested as a possible anode in high energy-d. **batteries** using room temperature chloroaluminate molten salt electrolytes, but it cannot be used directly in typical melts because the reduction of Na⁺ falls beyond the neg. voltage limit. When a neutral melt of 1-methyl-3-ethylimidazolium chloride and aluminum chloride (MEIC/AlCl₃) is buffered with NaCl, and excess protons (1-methyl-3-ethylimidazolium chloride/HCl) are added, the neg. voltage limit is extended to -2.4 V (vs. an Al/N = 0.6 melt reference electrode) and the reversible plating and stripping of sodium is observed. Compositional data from SEM and energy dispersive spectra (SEM/EDS) verify that a layer of sodium is deposited on the surface of Pt and W electrodes. MEI⁺ appears to be reduced at nearly the same potential as sodium and probably forms a protective layer on top of the sodium. These plated species are fairly stable on the electrode surface as judged by a constant rest potential over several hours, but can easily be stripped off the electrode by a pos. potential scan. These characteristics suggest that sodium is a good candidate for the anode in a rechargeable **battery**.
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 52
IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: PRP (Properties)
(reversible plating and stripping of sodium at inert **electrode** in room-temperature melt of aluminum trichloride and sodium chloride and hydrochloric acid and)
IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
RL: PRP (Properties)
(reversible plating and stripping of sodium at inert **electrode** in room-temperature melt of aluminum trichloride and sodium chloride and hydrochloric acid and)
RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 66 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1991:586737 HCAPLUS

DN 115:186737

TI Polyaniline **batteries**

IN Koura, Nobuyuki; Ejiri, Yoichi

PA Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 03074052	A2	19910328	JP 1989-207891	19890814
PRAI	JP 1989-207891		19890814		

AB Primary and secondary **batteries** use polyaniline prepared from a room-temperature molten-salt bath containing aniline for their electrodes. The molten salt may be a mixture of 1-butylpyridinium chloride, N-containing 6-membered ring alkyl halide, and Al halide or, for the preparation of polyaniline for cathodes, a mixture containing 1-ethyl-3-methylimidazolium chloride, N-containing 5-membered ring alkyl halide, Al halide, and optionally an organic solvent or halides of alkali and alkaline earth metals. When both electrodes are from polyaniline, the **batteries** are divided by a separator or an ion-exchange membrane into a cathode chamber and an anode chamber, and preferably use acidic and alkaline room-temperature molten salts for catholyte and anolyte, resp.

IC ICM H01M004-04

ICS H01M010-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38

ST **battery** polyaniline electrode; polyaniline electrode synthesis molten salt; butylpyridinium chloride polyaniline electrode synthesis; ethylmethylimidazolium chloride polyaniline electrode synthesis; aluminum halide polyaniline electrode synthesis; heterocyclic halide polyaniline electrode synthesis

IT Electrodes

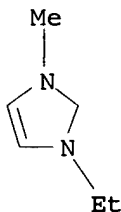
(**battery**, polyaniline for, manufacture of, by electropolymerization in room-temperature molten-salt bath)

IT 25233-30-1P, Polyaniline

RL: PREP (Preparation)

(manufacture of, for **battery** electrodes, by electrolytic polymerization, room-temperature molten-salt baths in)

IT 71-43-2, Benzene, uses and miscellaneous 1124-64-7 7446-70-0, Aluminum chloride, uses and miscellaneous 65039-09-0
RL: USES (Uses)
(molten-salt bath containing, electropolymn. of aniline in, for **battery electrodes**)
IT 65039-09-0
RL: USES (Uses)
(molten-salt bath containing, electropolymn. of aniline in, for **battery electrodes**)
RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

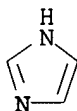
L40 ANSWER 67 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1991:480840 HCAPLUS
DN 115:80840
TI Cyclic charge-discharge behavior of sintered plate cadmium electrodes in the presence of organic additives
AU Selvan, S. Tamil; Sabapathi, R.; Venkatakrishnan, N.
CS Cent. Electrochem. Res. Inst., Karaikudi, 623 006, India
SO Journal of Applied Electrochemistry (1991), 21(7), 646-50
CODEN: JAELEBJ; ISSN: 0021-891X
DT Journal
LA English
AB The effect of some organic additives on the capacity performance of sintered plate Cd electrodes was studied. The additives under investigation were 1,2,3-benzotriazole (BTA), imidazole (IDA), and polyvinyl alc. (PVA). It was observed that these compds. minimize the capacity fall during the early cycles. IR spectra results indicate that Cd(II) forms complexes with azole compds., and SEM photographs supplement the results.
CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 52
ST charging discharging cadmium electrode; benzotriazole imidazole polyvinyl alc capacity electrode; **battery** electrode cadmium charging discharging
IT Surface structure
(of cadmium **battery** electrode, organic additives effect on)
IT 95-14-7, 1,2,3-Benzotriazole 288-32-4, Imidazole, properties 9002-89-5, Polyvinyl alcohol
RL: PRP (Properties)
(charging-discharging behavior of cadmium **battery electrodes** in presence of)
IT 7440-43-9, Cadmium, uses and miscellaneous
RL: USES (Uses)

(electrodes, **battery**, charging-discharging behavior of, organic additives effect on)

IT 7440-43-9DP, Cadmium, azole complexes
 RL: FORM (Formation, nonpreparative); PREP (Preparation)
 (formation of, in cadmium **battery** electrode charging-discharging in solution containing azoles)

IT 288-32-4, Imidazole, properties
 RL: PRP (Properties)
 (charging-discharging behavior of cadmium **battery** electrodes in presence of)

RN 288-32-4 HCAPLUS
 CN 1H-Imidazole (9CI) (CA INDEX NAME)



L40 ANSWER 68 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1991:105627 HCAPLUS
 DN 114:105627
 TI Development of a rechargeable polymer **battery**
 AU Shinozaki, Kenji; Kabumoto, Akira; Tomizuka, Yukio; Taguchi, Eiichi; Nishikawa, Nobuyuki; Umemura, Fumio; Watanabe, Kyoshi
 CS Res. Dev. Div., Yokohama Res. Lab., Japan.
 SO Furukawa Review (1990), 8, 34-41
 CODEN: FURED; ISSN: 0911-9280
 DT Journal
 LA English
 AB To develop rechargeable **batteries** of high energy d., several conducting polymers were synthesized and their properties evaluated. Polyaniline (I) had the best performance. Prototype **batteries** were built using I as an electrode and an initial energy d. of 50 W-h/kg was achieved for AA **batteries**. In 30 W-h/kg **batteries**, capacity loss was .apprx.30% after 100 charge-discharge cycles. Cycle degradation is due to irreversible oxidation of I at potentials higher than 3.7 V, and self-discharge is due to oxidation and decomposition of the solvent on the I electrode surface, followed by an undoping reaction.

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 38, 72

ST conducting polymer rechargeable **battery**; polyaniline cathode rechargeable **battery**

IT **Batteries**, secondary
 (conducting polymer, development of)

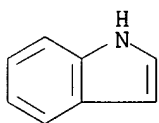
IT Electric conductors
 (polymeric, performance of, for rechargeable **battery**)

IT Polyamines
 RL: USES (Uses)
 (aniline-based, electrodes, performance of, for rechargeable **battery**)

IT Polymer degradation
 (electrochem., oxidative, of polyaniline electrode, rechargeable **battery** performance in relation to)

IT 25067-58-7, Polyacetylene 25233-30-1, Polyaniline 25233-34-5, Polythiophene 30604-81-0, Polypyrrole 51555-21-6, Polycarbazole 82451-55-6, Polyindole 82451-56-7, Polyazulene 132354-68-8

RL: USES (Uses)
 (electrodes, performance of, for rechargeable battery)
)
 IT 82451-55-6, Polyindole
 RL: USES (Uses)
 (electrodes, performance of, for rechargeable battery)
)
 RN 82451-55-6 HCAPLUS
 CN 1H-Indole, homopolymer (9CI) (CA INDEX NAME)
 CM 1
 CRN 120-72-9
 CMF C8 H7 N



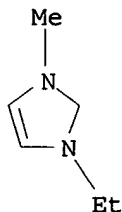
L40 ANSWER 69 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1987:543510 HCAPLUS
 DN 107:143510
 TI Room temperature fused salts based on copper(I) chloride-1-methyl-3-ethylimidazolium chloride mixtures. III. Electrochemical studies
 AU Bolkan, Steven A.; Yoke, John T.
 CS Dep. Chem., Oregon State Univ., Corvallis, OR, 97331, USA
 SO Journal of the Electrochemical Society (1987), 134(7), 1698-1702
 CODEN: JESOAN; ISSN: 0013-4651
 DT Journal
 LA English
 AB The potential of the concentration cell $\text{Cu} | 0.50 \text{ CuCl} + 0.50 \text{ MeEtImCl} || \text{nCuCl} + (1 - n) \text{ MeEtImCl} | \text{Cu}(\text{MeEtImCl} = 1\text{-methyl-3-ethylimidazolium chloride})$ plotted as a function of the mole fraction n gives a sigmoid curve but there is no sharp end point as the contents of the test half-cell change from acidic (Cl^- -poor) to basic (Cl^- -rich). The potential of the cell $\text{Cu} | 0.50 \text{ CuCl} + 0.50 \text{ MeEtImCl} || x \text{ CuCl}_2 + (0.50 - x/2) \text{ CuCl} + (0.50 - x/2) \text{ MeEtImCl} | \text{Pt}$ shows Nernstian behavior for the Cu(II) , Cu(I) couple over a limited Cu(II) concentration range. Current-overvoltage relations at a Cu electrode immersed in the $\text{nCuCl} + (1 - n) \text{ MeEtImCl}$ fused salts obey the Butler-Volmer equation. Exchange c.s. and symmetry coeffs. were calculated for melts of composition $0.40 < n < 0.60$. Transference nos. were measured for the melts; both MeEtIm^+ cations and chlorocuprate(I) anions such as CuCl_2^- are significant charge carriers. Electrochem. cells based on combinations of a Cu electrode in the chlorocuprate(I) melts with an Al electrode in low melting chloroaluminate fused salts were made and tested.
 CC 72-2 (Electrochemistry)
 Section cross-reference(s): 52, 68
 IT Batteries, primary
 (concentration cells, copper with cuprous chloride-methylethylimidazolium chloride melt)
 IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride
 RL: PRP (Properties)
 (elec. potential of concentration cell and galvanic cell of copper electrode with melt from cuprous chloride and)
 IT 65039-09-0, 1-Methyl-3-ethylimidazolium chloride

RL: PRP (Properties)

(elec. potential of concentration cell and galvanic cell of copper electrode with melt from cuprous chloride and)

RN 65039-09-0 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)

● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 70 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:585798 HCAPLUS

DN 103:185798

TI Passivity of nickel electrodes in presence of the inhibitor PAB

AU Goledzinowski, M. M.; Rolle, D.; Schultze, J. W.

CS Inst. Phys. Chem., Univ. Duesseldorf, Duesseldorf, 4000, Fed. Rep. Ger.

SO Werkstoffe und Korrosion (1985), 36(9), 381-8

CODEN: WSKRAT; ISSN: 0043-2822

DT Journal

LA English

AB The passivity of Ni electrodes was investigated at high potentials in absence and presence of the inhibitor, 2-pentylaminobenzimidazole (PAB). At high potentials, the electrode is covered by a thick film of NiOOH. Various states of the trivalent oxide film can be distinguished: without inhibitor (3o), with an outer layer of inhibitor (3out), with an almost constant concentration profile in the total film (3tot) and a concentration gradient of inhibitor in the film caused by diffusion (3diff). Under steady-state conditions, the films 3o, 3out and 3tot can be distinguished by the rate of anodic O evolution, and the electrode capacitance. Moreover, the reduction and reoxidn. capacity of the electrode decreases from 3o to 3out and 3tot. If the film 3o is reduced and reoxidized in presence of PAB, the redox capacity decreases simultaneously with the electrode capacitance due to the formation of 3diff. The role of the inhibitor is due to the formation of a thick polymer film on top of the oxide as well as the formation of a nickel hydroxide/PAB complex. The outer polymer film has a good **proton conductivity** and presumably a good electron conductivity. The anodic O evolution takes place at the inner boundary between the oxide and PAB film. The inhibition of local corrosion is probably due to formation of the outer polymer film. XPS measurements verify the expected concentration profiles of PAB in the oxide and on top of it. The PAB-film contains a lot of H₂O and within the passive film PAB causes a substitution of O²⁻ by OH⁻.

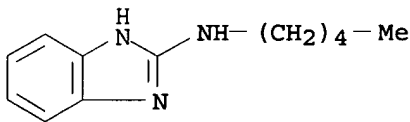
CC 72-6 (Electrochemistry)

IT 76835-99-9

RL: PRP (Properties)

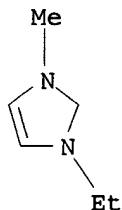
(corrosion inhibitor, nickel electrode passivity in presence of)

IT 76835-99-9
RL: PRP (Properties)
(corrosion inhibitor, nickel electrode passivity in presence of)
RN 76835-99-9 HCAPLUS
CN 1H-Benzimidazol-2-amine, N-pentyl- (9CI) (CA INDEX NAME)



L40 ANSWER 71 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
AN 1985:580885 HCAPLUS
DN 103:180885
TI The wetting behavior of dialkylimidazolium chloroaluminate, a room temperature molten salt
AU Eberhart, J. G.
CS Frank J. Seiler Res. Lab., U.S. Air Force Acad., Colorado Springs, CO, 80840, USA
SO Journal of the Electrochemical Society (1985), 132(8), 1889-91
CODEN: JESOAN; ISSN: 0013-4651
DT Journal
LA English
AB Contact angles between molten salts and candidate separator or porous **electrode** materials were measured to examine effects of melt composition, chemical constitution of the solid, chlorination of the organic component of the melt, replacement of AlCl₃ by other inorg. compds., and cleaning procedures for the solid on the wettability of solid materials by molten salts. Substrates used were soda-lime glass microscopic slide, Teflon [9002-84-0], porous polypropylene [9003-07-0] films, and reticulated vitreous C. Molten salt systems used were 1-methyl-3-ethylimidazolium chloride [65039-09-0] containing 0.333, 0.500, 0.600, or 0.677 mol fraction (N) AlCl₃ or LiCl (N = 0.376), and 4,5-dichloro-1-methyl-3-ethylimidazolium chloride [98812-17-0] containing AlCl₃ (N = 0.375, 0.600, or 0.650). AlCl₃ plays a key role in the good wetting of these molten-salt solns. and the wetting behavior improves with increasing N except for a polypropylene film. Chlorinated melt (used originally or produced in the cells has about the same wetting behavior as the nonchlorinated melt.
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 66
ST ethylmethylimidazolium chloroaluminate wetting glass; Teflon wetting ethylmethylimidazolium chloroaluminate; polypropylene wetting ethylmethylimidazolium chloroaluminate; carbon wetting ethylmethylimidazolium chloroaluminate; **battery** electrode wetting ethylmethylimidazolium chloroaluminate; separator **battery** wetting ethylmethylimidazolium chloroaluminate; chlorination effect wetting ethylmethylimidazolium chloroaluminate
IT Wetting
(of electrode and separator materials, for **batteries**, by ethylmethylimidazolium chloroaluminate, chlorination effect on)
IT Electrodes
(**battery**, materials for, wetting of, by ethylmethylimidazolium chloride containing aluminum chloride or lithium

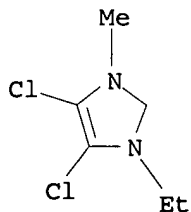
- chloride)
- IT **Batteries, secondary**
(separators, materials for, wetting of, by ethylmethylimidazolium chloride containing aluminum chloride or lithium chloride)
- IT 7447-41-8, uses and miscellaneous
RL: USES (Uses)
(wetting by ethylmethylimidazolium chloride containing, of electrode and separator materials, for **batteries**)
- IT 7446-70-0, uses and miscellaneous
RL: USES (Uses)
(wetting by ethylmethylimidazolium chloride containing, of electrode and separator materials, for **batteries**, chlorination effect on)
- IT 65039-09-0 98812-17-0
RL: USES (Uses)
(wetting by metal chloride-containing, of **electrode** and separator materials, for **batteries**)
- IT 65039-09-0 98812-17-0
RL: USES (Uses)
(wetting by metal chloride-containing, of **electrode** and separator materials, for **batteries**)
- RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

- RN 98812-17-0 HCAPLUS
CN 1H-Imidazolium, 4,5-dichloro-1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L40 ANSWER 72 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:69376 HCAPLUS

DN 102:69376

TI Electrolytic nickel flakes

PA Sumitomo Metal Mining Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 59193294	A2	19841101	JP 1983-51589	19830329
	JP 61042793	B4	19860924		
PRAI	JP 1983-51589		19830329		

AB The Ni flakes are obtained on cathodes by electrolysis of a bath containing Ni and an organic secondary brightener 0.1-10.0 g/L. Ni deposited on the cathode is peeled and recovered as flakes. The method gives Ni flakes at a low cost by simple operations. The flakes are useful for **batteries** and powder metallurgy. Thus, electrolysis was carried out in bath (pH 4.0, temperature 50°) containing NiCl₂·6H₂O, H₃BO₃ and 2-butyne-1,4-diol 2.0 g/L, and having electrolytic Ni as an anode, and a specular finished Ti sheet as a cathode to deposit Ni. Ni flakes 10-100 μ in size and 0.3-0.6 μ thick were obtained when the Ti cathode was washed with water. The flakes were easily pulverized in a mortar to give particles 0.1-3 μ in size.

IC C25C005-02

CC 72-8 (**Electrochemistry**)ST nickel flake electrodeposition; brightener org nickel electrodeposition; **battery** nickel powder; powder metallurgy nickel

IT 50-00-0, uses and miscellaneous 62-56-6, uses and miscellaneous

91-64-5 109-78-4 110-65-6 **288-32-4**, uses and miscellaneous

10043-35-3, uses and miscellaneous

RL: USES (Uses)

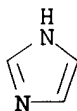
(in **electrodeposition**, of nickel flakes)IT **288-32-4**, uses and miscellaneous

RL: USES (Uses)

(in **electrodeposition**, of nickel flakes)

RN 288-32-4 HCAPLUS

CN 1H-Imidazole (9CI) (CA INDEX NAME)



L40 ANSWER 73 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1985:64892 HCAPLUS

DN 102:64892

TI An aluminum acid-base concentration cell using room temperature chloroaluminate ionic liquids

AU Dymek, C. J., Jr.; Williams, J. L.; Groeger, D. J.; Auburn, J. J.

CS Frank J. Seiler Res. Lab., U. S. Air Force Acad., Colorado Springs, CO, 80840, USA

SO Journal of the Electrochemical Society (1984), 131(12), 2887-92

CODEN: JESOAN; ISSN: 0013-4651

DT Journal

LA English
 AB Mixts. of 1-methyl-3-ethylimidazolium chloride (MEICl) [65039-09-0] and AlCl₃ m. l.torsim.25°. Acidic melts, which contain AlCl₃ mole fraction R >0.5, can be used as catholytes, with basic melts (R <0.5) as anolytes, in a concentration cell using Al plate electrodes and a microporous polypropylene separator. Gravimetric anal. of electrodes indicates that the anode reaction is: Al + 4Cl⁻ → AlCl₄⁻ + 3e⁻, and the cathode reaction is: 4Al₂Cl₇⁻ + 3e⁻ → Al + 7AlCl₄⁻. The open-circuit potential for the cell Al|AlCl₃ (R = 0.37), MEICl||AlCl₃ (R = 0.60), MEICl|Al is 1.38 V, and the voltage remains at >1.0 V at constant-current discharge of 1-3 mA for 6-cm² Al electrodes. Coulometry is combined with gravimetric and compositional anal. (using NMR spectroscopy) of the electrolytes to estimate transport nos.

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST aluminum acid base concn battery; methylethylimidazolium chloride aluminum electrolyte battery

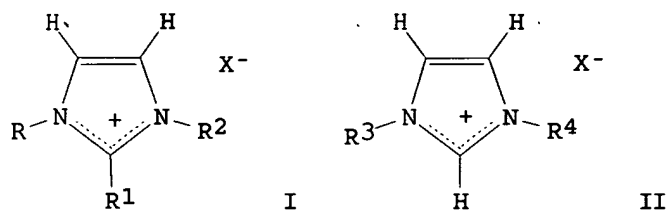
IT Batteries, secondary
 (concentration, aluminum acid-base, using room-temperature chloroaluminate ionic melts)

IT 7446-70-0, uses and miscellaneous
 RL: USES (Uses)
 (battery electrolytes from 1-methyl-3-ethylimidazolium chloride and, concentration-)

IT 65039-09-0
 RL: USES (Uses)
 (battery electrolytes from aluminum chloride and, concentration-)

L40 ANSWER 74 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1984:574739 HCAPLUS
 DN 101:174739
 TI Secondary batteries using room-temperature molten nonaqueous electrolytes containing 1,2,3-trialkylimidazolium halides or 1,3-dialkylimidazolium halides
 IN Gifford, Paul R.; Shacklette, Lawrence W.; Toth, James E.; Wolf, James F.
 PA Allied Corp., USA
 SO U.S., 7 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4463071	A	19840731	US 1983-556496	19831130
	GB 2150739	A1	19850703	GB 1984-29180	19841119
	GB 2150739	B2	19861001		
	DE 3443326	A1	19850605	DE 1984-3443326	19841128
	JP 60133670	A2	19850716	JP 1984-253961	19841130
PRAI	US 1983-556496	A	19831130		
GI					



AB **Batteries**, and especially secondary batteries use conjugated backbone polymer anodes, alkali metal-transition metal chalcogenide cathodes, and a nonaq. molten electrolyte mixture of an Al halide and I and(or) II, where R, R1, R2, R3, and R4 are independently C1-12 alkyl groups and X is independently a halide, e.g., Cl⁻ or Br⁻. In some instances an alkali metal and(or) tetraalkylammonium salt may also be incorporated into the electrolyte composition. The molar ratio of Al halide to I or II in the electrolyte can be varied over a wide range to make the electrolyte basic or neutral and, as such, useful in **batteries** with the above-mentioned **electrodes**, such as LixWO₂ or LixCoO₂ cathodes. Thus, a LiCoO₂-polyacetylene **battery** with an electrolyte mixture of 1,2-dimethyl-3-ethylimidazolium chloride [92507-97-6], AlCl₃, and LiCl was prepared, and its performance is reported.

IC H01M006-14

INCL 429194000

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 38, 72

ST polyacetylene lithium cobalt oxide **battery**;
dimethylethylimidazolium chloride **battery** electrolyte

IT **Batteries**, secondary

(cobalt lithium oxide-polyacetylene, with molten aluminum chloride-dimethylethylimidazolium chloride-lithium chloride electrolyte)

IT 92507-97-6

RL: USES (Uses)

(**battery** electrolyte, cobalt lithium oxide-polyacetylene)

IT 12190-79-3

RL: USES (Uses)

(cathodes, in **battery** with molten aluminum chloride-trialkylimidazolium chloride electrolyte)

IT 25067-58-7

RL: USES (Uses)

(electrodes, in **battery** with molten aluminum chloride-trialkylimidazolium chloride electrolyte)

L40 ANSWER 75 OF 75 HCAPLUS COPYRIGHT 2005 ACS on STN

AN 1978:52938 HCAPLUS

DN 88:52938

TI Sodium-sulfur **batteries**

IN Broadhead, John

PA Bell Telephone Laboratories, Inc., USA

SO U.S., 4 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

KATHLEEN FULLER EIC1700 REMSEN 4B28 571/272-2505

PI US 4054728 A 19771018 US 1977-766969 19770209
PRAI US 1977-766969 A 19770209
AB A Na-S **battery** contains a conventional Na **electrode**, a conventional S **electrode**, a conventional solid electrolyte, and an additive which reduces the operating temperature of the cell from 300-400 to 130-200 without deleterious effects on its operating characteristics. The additive is selected from the group consisting of imidazole [288-32-4] and aliphatic and aromatic substituent-containing imidazoles, the number of C atoms on all substituents of the compound being ≤ 6 . Thus, a **battery** was set up whose cathode consisted of approx. equal amts. of S, Na₂S, and imidazole. The **battery** was operated at .apprx.155° with no significant degradation in operating characteristics.
IC H01M010-39
INCL 429104000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST sodium sulfur secondary **battery**; imidazole sodium sulfur **battery**
IT Cathodes
(**battery**, sulfur, imidazole-containing low-temperature)
IT **Batteries**, secondary
(sodium-sulfur, low-temperature imidazole-containing)
IT 288-32-4, uses and miscellaneous
RL: USES (Uses)
(cathodes containing, sodium-sulfur **battery**)
IT 7704-34-9, uses and miscellaneous
RL: USES (Uses)
(cathodes, imidazole-containing, low-temperature **battery**)

=>